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ANNUAL REPORT

OF THE

CHIEF SIGNAL OFFICER OF THE ARMY

TO THE

SECRETARY OF WAR

FOR

THE YEAR 1884.

WASHINGTON:
GOVERNMENT PRINTING OFFICE.
1884.

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REPORT

OF THE

CHIEF SIGNAL OFFICER.

SIGNAL OFFICE, WAR DEPARTMENT,
Washington City, *October* 15, 1884.

SIR: I have the honor to submit herewith my report upon the work of the Signal Service during the fiscal year ending June 30, 1884, and also to add a summary, made necessary by the subsequent return of Lieutenant Greely, of the work and relief of the Lady Franklin Bay Expedition.

INSTRUCTION AT FORT MYER.

The course of instruction pursued at Fort Myer has been enlarged and otherwise improved. An appendix (No. 1) containing the courses for officers and men and the standing orders governing the School of Instruction accompanies this report. It is the theory that all who are connected with the corps shall be constantly available for all branches of military service for which the Signal Corps is maintained. In this connection it is unfortunate that Congress failed to provide for horses for the corps. When in the field, the men must be mounted, and although the telegraph train, recognized by all powers as most essential in modern warfare, must be moved by horses, not one animal is at my command available for these purposes. Through no fault of the service, it has, for two years, been impossible to teach the men to ride or to manage the telegraph train in the field. With these disadvantages the work of signal instruction has been carried on. Instruction and practice in signaling. by flag, torch, and heliograph, and in telegraphy, has been given.

The annual report of the officer in immediate command of Fort Myer will be found in Appendix 2.

INSTRUCTION IN METEOROLOGY.

During the year five officers completed the course of instruction at Fort Myer. Sixty-nine enlisted men were instructed in signaling, telegraphy, elementary meteorology, and in their duties as soldiers.

In addition to the above, two officers have completed the course of instruction at this office required of officers charged with the preparation of weather predictions, the announcement of approaching frosts, and the ordering of danger signals.

The number of officers available for this important branch of the service is too limited, and the best results can only be expected when the officers selected for this work are enabled to devote their whole time to the study of meteorology.

Owing to the limited force of officers available for duty, the instructed officers have been called upon for executive work, and but little time has been available for special study.

The popular interest in the study of meteorology, stimulated by the work of the Weather Bureau of the Signal Service, is increasing. Institutions of learning are giving meteorological instruction a place in their *curricula*, and in order to meet the demands made upon the service in this connection, lectures have been given during the year by officers and professors connected with the office, and an elementary text-book, intended for use in normal and high schools, is in course of preparation.

The text-books on meteorology, available for use in this country, are, in some respects, unsatisfactory, and it is apparent that a new work is needed, treating the subject from a point of view radically different from that employed in works extant. The preparation of such a treatise is now in progress by gentlemen connected with the office.

An important contribution to the literature of meteorology and kindred subjects has been made during the year by the publication of Professional Paper No. XIII, Professor Ferrel's "Temperature of the Atmosphere and the Earth's Surface." Near the close of the year the service began the publication of Professional Paper No. XV, "Researches on Solar Heat and its Absorption by the Earth's Atmosphere," in which Prof. S. P. Langley, director of Allegheny Observatory, reports upon the work of the Mount Whitney Expedition, undertaken by him in 1881, and sets forth a number of deductions from the data there obtained. It is hoped to give this important memoir to the scientific public early in the current fiscal year.

It is desired to have soon available a number of translations of the works of Guldberg, Mohn, Schoch, and Sprung, now in course of preparation.

The attempt made during the last three years to secure the enlistment of young college graduates has met with gratifying success. Of the two hundred and fifty-one enlistments made during that time sixty-five were of college graduates. They have been placed, as far as practicable, under instruction to qualify them for that work of the service requiring more than ordinary knowledge of mathematics and physics, especially in electricity, magnetism, etc.

APPROPRIATIONS.

It is my duty to again call your attention to the crippled condition in which the Signal Service has been left by the last two appropriation acts. Congress has made it impossible to carry on the full work of this bureau, and, as a consequence, seventeen stations of the meteorological service have been closed in order to send men to the telegraph lines, although a large part of the frontier lines have been abandoned, having been supplemented by commercial lines. The meteorological stations abandoned were selected with great care, but need of their data is greatly felt.

The appropriation laws of the last two fiscal years were framed under the expressed wish of Congress to separate the appropriations for this service from those made for the support of the Army. From its organization until recently the Signal Service has been provided for as a part of the Army, and it is now recommended that while the items of appropriation for the service remain separate and specific they be made as a part of the appropriations for the Army.

While some of the deficiencies of the appropriation laws for the last fiscal year have been made up, the appropriations for the current year omit provision for a number of items, which, although individually of minor importance, collectively are necessary for the complete well-being of the service. No forage was provided for horses of officers other than those of the Chief Signal Officer, and no provision was made for ordnance and ordnance stores for the corps. Extra-duty pay for men employed continuously, under the laws of Congress, for more than ten days upon skilled duties or labor not strictly military was not provided for, causing a reduction in the earned allowances of the most meritorious and skillful men in the service, while the men at Fort Myer who labor for the proper service of the post just as men at other posts do, who receive therefor extra pay, can receive nothing. This is an unjust discrimination against the enlisted men of the Signal Corps of the Army.

Captain S. M. Mills, 5th Artillery, has acted as property and disbursing officer of the Signal Corps during the year ending June 30, 1884, and his report, showing the work performed under his immediate direction, is given in Appendix No. 3.

Statement of amounts appropriated for the support of the Signal Service, U. S. Army, for the fiscal year ending June 30, 1884.

Legislative, executive, and judicial:	
Regular clerks, messengers, &c	$10,660 00
Scientific experts, clerks, &c	40,000 00
Postage stamps, postal union countries, allotted by Secretary of War	1,200 00
Stationery, allotted by the Secretary of War	3,400 00
Rent of buildings for signal office	7,000 00
Official postage, allotted by the Secretary of War	40,000 00
Fuel and light	1,107 24
Total	103,367 24
Sundry civil expenses:	
Observation and report of storms,	
Manufacture, purchase, and repair of instruments	$5,500 00
Telegraphing reports	136,000 00
Expenses storm signals	10,000 00
Cotton-belt reports	7,000 00
Connecting life-saving stations	5,500 00
Instrument shelters	500 00
Rents, &c., of offices outside of Washington	40,000 00
Office furniture in Washington	1,000 00
River and flood reports	5,000 00
Maps and bulletins	25,000 00
Books, periodicals, and stationery	6,000 00
Incidental expenses	1,000 00
Total	$242,500 00
Maintenance and repair of military telegraph lines	$35,000 00
Observations and explorations in the Arctic seas	$33,000 00
Pay, &c., of the Signal Corps:	
Pay of officers	$19,500 00
Pay of enlisted men	200,000 00
Mileage to officers	5,000 00
Pay of contract surgeons	3,600 00
Commutation of quarters to officers	7,000 00
Total	$235,100 00

Sundry civil expenses—Contiued.

Subsistence Department:	
Stores, Lady Franklin Bay	$5,000 00
Stores, Point Barrow	3,000 00
Subsistence and commutation of rations, Signal Corps	148,727 72
Commutation of rations, men with expeditions	8,052 00
Total	$164,779 72
Quartermaster's Department:	
Regular supplies—	
Fuel	$6,295 00
Commutation of fuel at $9 per month	23,760 00
Commutation of fuel at $8 per month	23,328 00
Forage for mules and horses	3,100 00
Stationery	100 00
Stoves	706 25
Lights	362 50
Total	$57,651 75
Incidental expenses—	
Horse and mule shoes	$500 00
Blacksmith's tools	550 00
Veterinary supplies	300 00
Fire apparatus, disinfectants, &c.	125 00
Total	$1,475 00
Transportation—	
Supplies, &c	$25,000 00
Officers and men	8,875 00
Means of, mules	700 00
Means of, spring wagon	200 00
Means of, repairs to	500 00
Total	$35,275 00
Barracks and quarters—	
Commutation of quarters	$84,108 00
Work and supplies at Fort Myer	1,800 00
Total	$85,908 00
Clothing and camp and garrison equipage—	
For sergeants	$6,937 50
For corporals	1,375 20
For privates	14,182 40
For detailed men	990 00
Total	$23,485 10
Medical Department:	
Medical attendance and medicines, officers and men, Signal Corps	$3,500 00
Medical attendance and medicines, officers with Signal Corps	100 00
Medical and hospital supplies, Fort Myer	900 00
Medicines from depots, &c	1,000 00
Material, repairs to hospital, Fort Myer	200 00
Total	$5,700 00
Support of the Army:	
Expenses Signal Service, U. S. Army	$5,000 00
Grand total	$1,028,241 81

Many private persons, institutions of learning, &c., purchase their instruments through this office, because of the advantage afforded to obtain greater accuracy, by having the instruments compared with our standards, for which no extra charge is made. Of these there have been purchased two hundred and ninety-three instruments at a total cost of one thousand seven hundred and seventy-five dollars and thirty cents

The duties of collecting line receipts, settling accounts for business transferred to connecting lines, examining and correcting telegraph accounts and preparing these accounts for transmission to the Treasury Department, require much attention, and involving, as they do, a large monetary responsibility, too much care cannot be exercised.

The receipts from these lines have been collected and covered into the Treasury without the loss to the United States of a cent. This is a noteworthy feature, considering the extent of territory covered, the isolated position of stations, and the poor facilities many of the operators have of transmitting money to this point.

While the amount of money collected on these lines is not as large as in former years, an equal amount of care and labor is required to account for it.

It is especially urged that steps be taken toward providing for a means of remitting line receipts, whereby the risk of loss will be reduced to the minimum, and I would suggest that Congress be asked to allow the expense of remitting line receipts to be paid therefrom. There have been no losses during the past year on account of failures in the mail service, but should a single registered package be lost the contents are irrecoverable, and, as most of the remittances contain money for other lines, the way to a settlement of their claim, under the present law, is not plain.

INDICATIONS.

The weather forecasts and storm warnings issued from this office have been sought for and published by the daily journals throughout the country, and the increasing demands for special predictions in the interests of agriculture, special trades, and commerces indicate in a measure the practical value of this important division of the Signal Service.

The Special Bulletin, which is a new feature of the weather forecasts of this office, is issued at 10 a. m. daily, and contains a more general account of the meteorological conditions than it is possible to give in the indications. The bulletins are intended to inform the public of approaching cold waves, general storms, frosts, extreme temperatures, etc., and contain forecasts applicable to the succeeding forty-eight hours from the date of the bulletin. When practicable, the midnight indications close with a special forecast of the weather and temperature for the day following that for which the regular indications are prepared.

The following tables show the percentage of accuracy of the indications, considering the four meteorological elements for which forecasts are made. With a view of ascertaining the character of the work performed in this division I have required each forecast to be carefully analyzed and a comparison made of the conditions anticipated and those actually occurring during the time for which the indications were made. The rules by which these percentages have been computed have been revised, and instructions issued prohibiting the use of ambiguous language in the weather forecasts. With these improvements in the wording of the indications and the more rigid manner of determining the accuracy of predictions, I am able to report an improvement in the work of this division, and further improvements could be made by an increase of stations, especially in the West and Northwest. No general storm has passed over this country during the year without warning.

The sudden approach of storms from the Atlantic occasionally cause unexpected changes in the atmospheric conditions, leaving but a limited time for warnings to be issued. The service is greatly aided in this feature of the work by the stations on the sea-coast telegraph line, and a station at the Bermudas would add greater security from the danger of this class of storms.

Percentage of "Indications" verified, for the year ending June 30, 1884.

Districts.	1883.						1884.						Annual averages.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
New England	86.8	88.0	87.5	89.5	81.2	85.2	88.3	88.3	83.6	76.7	79.7	80.4	84.6
Middle Atlantic States	90 3	91.1	89.4	90.6	90.0	86.7	91.7	87.1	83.5	83.1	84.4	84.2	87.7
South Atlantic States	84.6	84.5	85.9	89.8	58.0	82.6	89.9	84.2	84.4	86.8	84.2	84.4	85.8
Eastern Gulf States	86.8	86.5	86.4	90.8	88.2	83.6	91.3	83.0	81.4	85.6	83.9	85.9	86.1
Western Gulf States	89.8	90.7	88.6	90.2	87.7	85.6	89.5	80.5	79.7	86.7	84.9	83.3	86.4
Lower lake region	85.6	86.3	88.0	89.7	87.2	86.4	88.7	86.5	84.0	82.8	79.9	81.7	85.7
Upper lake region	88.0	85.3	84.6	91.7	86.3	86.0	87.5	89.9	83.7	82.5	78.0	82.2	85.0
Tennessee and Ohio valley	87.0	89.0	92.1	89.6	89.7	84.4	90.6	82.7	84.2	85.2	81.8	85.9	86.8
Upper Mississippi valley	87.9	83.9	87.2	92.1	82.4	84.0	87.9	82.0	88 0	84.9	78.4	85.9	85.0
Missouri valley	82.6	81.4	85.1	87.7	72.8	83.4	84.3	74.9	78.9	82.4	78.6	80.0	81.0
Monthly averages	86.9	86.9	87.5	90.2	85.4	84.8	89.0	83.3	82.6	83.7	81.4	83.4	85.4

The "indications" for the districts named in the above table were for character of weather, direction of winds, and changes of atmospheric temperature and pressure.

The following table shows the percentages of verifications for the Pacific coast regions, the predictions being for character of the weather only:

Districts.	1883.						1884.						Annual averages.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
North Pacific coast regions	100.0	100.0	86.5	75.0	92.0	89.8	83.0	78.1	72.4	90.7	86.3	75.9	85.8
Middle Pacific coast region	100.0	100.0	94.0	93.0	81.0	87.0	84.5	100.0	88.2	81.0	87.1	91.7	90.6
South Pacific coast region	100.0	97.9	98.2	96.6	96.3	93.2	83.6	81.2	92.1	79.4	89.5	89.2	91.4
Monthly averages	100.0	99.3	92.9	88.2	89.8	90.0	83.7	86.4	84.2	83.7	87.6	85.6	89.3

The following table shows the number of cautionary signals ordered during the year ending June 30, 1884, with the number and percentages that were justified:

Month and year.	Cautionary signals.			Cautionary off-shore signals.			Cautionary north-west signals.			Total number of signals ordered.	Total number of signals justified.	Percentage of total number of signals justified.
	Number ordered.	Number justified.	Percentage justified.	Number ordered.	Number justified.	Percentage justified.	Number ordered.	Number justified.	Percentage justified.			
1883.												
July	67	48	71.6	8	5	75.0	None			75	53	70.7
August	119	89	74.8	1	1	100.0	None			120	90	75.0
September	119	96	80.7	11	5	45.5	None			130	101	77.7
October	251	181	72.1	49	39	79.6	12	9	75.0	312	229	73.4
November	241	203	84.2	52	50	96.2	None			293	253	86.4
December	208	186	89.4	66	60	90.9	None			274	246	89.8
1884.												
January	241	208	86.3	94	77	81.9	1	1	100.0	336	286	85.1
February	176	153	86.9	107	100	93.5	None			283	253	89.4
March	246	200	81.3	62	54	87.1	3	3	100.0	311	257	82.6
April	166	144	86.8	63	52	82.5	None			229	196	85.6
May	266	197	74.1	58	46	79.3	None			324	243	75.0
June	89	80	89.9	None			None			89	80	89.9
Total	2,189	1,785	81.1	571	489	85.6	16	13	81.2	2,776	2,287	82.4

Of the total number of cautionary off-shore signals displayed, 534, or 93.5 per cent., were justified as to direction, and 506, or 88.6 per cent., were justified as to velocity. All of the "northwest" signals (16 in number) were justified as to direction.

The abandonment of stations, rendered unavoidable by lack of funds, necessarily interferes with weather prediction. The statutes provide that warnings of the approach of storms shall be given by telegraph, yet the service was left for two months last year without the means for paying the necessary telegraph expenses. As a result, in addition to the reduction in the number of stations, to which attention has already been called, the office was deprived during May and June, 1883, of reports from the Pacific coast. The Western Union Telegraph Company, however, came to our relief and actually performed a large amount of service for which it received no pay and for which it declined making charge.

The great number of "drops" made without cost by this company by recent arrangement has largely increased the benefits of the service to the public by a wider distribution of the information collected.

If the intention is to permit a proper advance in the art of applying meteorological knowledge and laws for the benefit of commerce and agriculture an increase in the number of stations must be provided for, not a diminution. The demands of the country upon the service are increasing every year and should be promptly met.

The capacity of the corps will be devoted, as in the past, to the maintenance of the work of weather predictions, but the success of the office in its work has so increased the labor imposed upon it by the public that the demands for administrative work made upon the number of officers assigned to or belonging to the corps necessarily interferes with the proper attention to scientific investigation.

BOARDS OF TRADE.

The demand made by the commercial organizations in the various large cities throughout the country for an increase of the information furnished by this service indicates the importance of the work done, and calls for a more liberal support from Congress, that the interests which these organizations represent may not suffer. Committees of the boards of trade, chambers of commerce, &c., appointed to confer with the Chief Signal Officer and the observers in charge of stations suggest improvements in the work of this service, and through these committees frequent calls have been made for data which I have not been able to supply owing to the limited appropriation.

The meteorological committees, distributed as they are in various sections of the country, and representing every branch of trade, are important auxiliaries to this service, and not only are the observers on stations directed to confer with them, but inspecting officers of the service are required to consult them as to the nature of the work done by the observers, and the demands for an increase of usefulness of the service.

ARCTIC WORK.

The two Arctic expeditions, which were a part of an international series about the pole, in which many governments participated, have terminated. That at Point Barrow under Lieutenant Ray, having been abandoned as directed from this office, arrived at San Francisco, October 7, 1883. Lieutenant Ray's prescribed work during the whole two years has been efficiently performed, in exact accordance with his instructions, and he reports that he had no man sick a single day during the entire period; that their duty there was wholesome and pleasant, and without suffering from cold. His full report will soon be completed.

I will briefly outline the expedition to Lady Franklin Bay.

The general plan received the signature of the President the 28th of April, and the expedition was established by act of Congress approved May 1, 1880.

It contemplated sending one ship with a small party and three years' provisions to be left at their station, and that the ship should then be discharged.

This was to be followed by a supply ship the next season, 1882, and by a relief ship the second summer, and in case it did not reach the station, the party was to establish a depot and quarters for the winter at Littleton Island, with sufficient supplies for both parties, and remain there, and not later than September 1, 1883, Lieutenant Greely, the Arctic commander, with his party, was to begin his retreat, and join them for the winter. This would require sending a ship to Littleton Island the fourth year.

Before Lieutenant Greely's departure from Washington I determined upon a general plan for carrying out this work, after full consultation with him, including a plan for the guidance of two proposed relief expeditions to sail in 1882 and 1883, respectively. His general outfit was the most complete in all respects ever sent into the Arctic seas, and was the result of very careful and comprehensive study.

After arriving at his station, Lieutenant Greely wrote out what he deemed a more complete plan for his relief, and forwarded it to me, earnestly recommending its adoption. In its support he used the following language: "Such action, from advice, experience, and observation, seems to me all that can be done to insure our safety. No deviation from these instructions should be permitted." I regarded that plan as authoritative, coming, as it did, from an officer possessing peculiar means of knowledge, charged with the performance of hazardous duties in an almost unknown field of operations, and pre-eminently endowed with the qualifications that should challenge respect for his judgment in such a matter, and it had the weight of being of necessity the prearranged plan, the violation of which on my part nothing could excuse. I still hold that, in view of all probable emergencies, it was the wisest plan that could possibly have been adopted.

The steam-sealer "Neptune" was dispatched in 1882 with a proper relief party and adequate supplies, in charge of Mr. W. M. Beebe, jr., of the General Service of the Army, but failed to reach the station because of impassable ice-barriers. After watching for an opening through the solid ice of Smith's Sound and Kane's Sea until the navigable season in that latitude had nearly closed, and discovering none, the expedition made caches of supplies at the most northerly points of land that it attained and then returned to Saint John's.

The steam sealer "Proteus," of Saint John's, was chartered by me as the relief ship for 1883. That vessel had borne Lieutenant Greely to his station in 1881, and he had afterwards highly commended her and her captain as in all respects well qualified for that duty. The plan of this relief expedition was submitted by me to the Secretary of War for his approval as early as November 1, 1882. In the first paragraph of my letter inclosing the same I wrote as follows: "I have the honor to inclose herewith copy of plan for relief expedition of next year for the Arctic party at Lady Franklin Bay, which plan Lieutenant Greely wished followed in the event of a failure to reach him this year. This seems to leave us only to follow his plans." That plan was returned to me without any dissent as to its essential features, but with the suggestion "that it would be much desirable to endeavor to procure from the Navy the persons who are needed for this relief party." My views as to such suggestion were requested, and as they were furnished I presumed that they were satisfactory, as it was not insisted on. As a measure of precaution the Secretary of War, on my special application, requested the Navy Department to detail a suitable vessel of the Navy to accompany the relief ship as far north as Littleton Island. The steamship "Yantic," Commander Frank Wildes, U. S. Navy, was accordingly assigned to that duty. She was placed in dock and heavily sheathed with oak-planking, and her battery and ordnance stores landed, and it was believed that she was in all respects thoroughly equipped for that special service. In view of the possible destruction of the "Proteus," Commander Wildes was ordered to proceed as far north *as practicable*, in order to afford succor to her officers and crew in the event of such an accident, and he was directed to proceed northward through Davis Straits, in company with the "Proteus" if practicable, but not to enter the ice-pack or proceed beyond Littleton Island.

Lieut. E. A. Garlington, Seventh Cavalry, U. S. Army, was assigned to the command of the relief party by order of the Secretary of War, he having volunteered, and being recommended as a suitable officer for that service by the general commanding the Department of Dakota, where he had been stationed for several years. Lieutenant Garlington's instructions embodied the plan of Lieutenant Greely, and he was ordered to follow it closely. He was informed that he would be accompanied by a ship of the United States Navy, the "Yantic," as far as Littleton Island, to render him such aid as might become necessary and as might be determined by the captain of that ship and himself *when on the spot.*

The relief expedition, consisting of those vessels, sailed from Saint John's, in company, on June 29, and voluntarily separated on the same day; the "Proteus" on her arrival at Godhavn being five days in advance of the "Yantic." They were again in company at the last-named point on July 12, and remained together there until July 16, when the "Proteus" again proceeded northward alone, and seven days later was crushed in the ice-pack of Smith's Sound and sunk with nearly all her stores. At the time of the sinking of the "Proteus" off Cape Sabine, on July 23, the "Yantic," that was ordered to be at Littleton Island, if practicable, to meet just such an emergency, the designated reserve ship of the expedition, was distant from Littleton Island more than 1,000 miles.

Lieutenant Garlington, on the day succeeding the wreck, proceeded with the relief party to Life Boat Cove, near Littleton Island, and without halting to await the arrival of his reserve ship, set out at once southward in small boats, carrying off with him full rations for thirty-seven men, for forty days at least, being three-fourths of the provisions saved from the wreck, leaving less than one-fourth cached for Greely and his party of twenty-five at Cape Sabine.

Lieutenant Garlington and party boarded the "Yantic" at Upernavik on September 2. She had arrived at Littleton Island on August 3, only five days after the relief party had left that vicinity, and started southward on the same day, without leaving one ration out of her superabundant stores for Lieutenant Greely and his party. The "Yantic" returned to Saint John's on September 13.

This abandonment of Lieutenant Greely and his party to probable starvation, by officers whose only mission in those waters was to succor them, displayed a lamentable disregard of grave responsibilities.

When the convoy was met it was but three days steaming from Littleton Island, fully stored with supplies out of which ample provision for Lieutenant Greely and the relieving party could have been made, supplemented by those at Cape Sabine and Littleton Island, and it was comparatively in the early season. Yet the convoy did not return to leave succor, nor did the commander of the relief expedition, Lieutenant Garlington, demand it.

Immediately upon the return of the ships to Saint John's this bureau did all in its power to have other ships at once sent from that point, but was unsuccessful, after having been assured that it would be done. It is now almost certain that had any of these steps been taken loss of life and disaster would have been averted, and the cost of a ship from Saint John's last autumn would have been but a small part of the expense of the final relief.

This bureau endeavored to place the relief party upon the theater of action with the best possible ships and equipment, at the most timely season, so that it might be unhampered except by the necessary general plan that both parties must work upon, and with the fullest opportunity and freedom to accomplish its purpose. So far as it was possible this was done.

Lieutenant Greely carried out his instructions literally, as this bureau had also carried out the prearranged plan. Leaving his station within the prescribed time, he brought his party, records, and instruments for final comparison, to Cape Sabine, in its retreat without loss, all in sound health and under wholesome discipline.

Landing at Baird Inlet on September 29th, after having been adrift for a month in the ice-pack of Kane's Sea and Smith's Sound, Lieutenant Greely found himself in a desperate condition; he had at that time one boat and about twenty days' rations. Upon the return of two men sent to Cape Sabine he learned of the loss of the "Proteus," and ascertained that some stores were cached in that vicinity. In like manner he found one hundred and fifty pounds of English meat at Cape Isabella. Abandoning the winter quarters which had been built in the mean time he moved his party to Camp Clay, about four miles northwest of Cape Sabine, on the shore of Buchanan Strait, where the cache of stores from the "Proteus" had been made. This point was reached October 15, 1883, when but ten days' sunlight remained. On examining the stores Lieutenant Greely found two hundred and fifty rations in the English cache at Payer Harbor in bad condition (except the beef), and two hundred and fifty rations in good order at the so-called Beebe cache. In the wreck cache left by Lieutenant Garlington were found five hundred rations of bread, about one hundred rations of meat, a few canned vegetables, and a large quantity of tea. At Cape Sabine, abandoned by Captain Pike, was found a quantity of tea and about three hundred pounds of bread. No other provisions of any kind were to be found. Considerable clothing was found cached both at Sabine and Camp Clay, but it had been badly damaged by foxes and bears.

By November 1 winter quarters had been built and all caches and articles gathered at Camp Clay. A hunting party was sent out after seal and camped in Rice's Straits. By November 12 (at which time the sun had been gone seventeen days) the hunting party had returned with two small seals, and the party sent to Isabella for the English meat cached there had been brought back, having been obliged to abandon the meat and the gin in Baird Inlet owing to the complete disability, by freezing, of one of the men. From the 1st of November the party was put on a ration of about fourteen ounces, of which less than five ounces was meat. The plan adopted by Lieutenant Greely contemplated this ration until March 1, when the remaining provisions would give an increased ration for ten days, during which he hoped to reach Littleton Island. At that date his party was still intact, with the exception of one who died of scurvy in January. Lieutenant Greely had, however, learned early in February that Smith's Sound was yet open, a condition of affairs which continued during the entire winter and spring. The ration being reduced still further, four of the party died from insufficient nutriment during the early part of April, while another perished in an attempt to procure the meat abandoned at Baird Inlet the preceding November. Twenty-five foxes and about sixty birds were killed during the winter and spring, which materially assisted in sustaining life. In the middle of the month of April a small bear and young seal were killed, which rendered possible a slightly increased ration and prevented further immediate deaths. About the middle of May the last food was issued, and deaths again commenced. From about the middle of March the ration was supplemented by minute sea shrimps, which were caught in a tidal crack, and later by saxifrage and lichens which, with seal-skin from clothes and sleeping bags, formed the supply of food from the middle of May. By June 18 but seven of the party remained alive, the rest having perished by starvation, except Eskimo Jens Edward, who was drowned, and Private Henry, who was executed by order of Lieutenant Greely for repeated thefts of food. From the middle of April Lieutenant Greely's party looked with long-ing hope towards Littleton Island, trusting that relief would come from that quarter. From that time forward a broad channel, free from ice, existed in Smith's Sound, which could have been crossed by strong men, but was utterly impassable for Lieutenant Greely's party, enfeebled and diminished as it was by months of starvation.

Preparations for the rescue this season were timely, the plan being carefully elaborated by a board of officers of the Army and Navy, at which the Chief Signal Officer presided. The expedition sailed from New York in three ships, the "Thetis," "Bear," and "Alert," the latter having been given to the United States by the Queen of England for the purpose, about the 1st of May, under Commander W. S. Schley, of the Navy, reaching Cape Sabine the 22d of June, effecting the rescue of the seven survivors, and returning to the United States, reaching Portsmouth, N. H., the 1st day of August, and, with the exception of weakness, all in good health. Sergeant Ellison, who was frozen in an attempt to secure the provisions cached at Isabella, died on the home passage, July 6, after suffering amputation of all his limbs. The work of rescue under Commander Schley was most praiseworthy and successful.

Up to the return of the expedition this year I had hoped there would be no occasion for raising the question of blame at this or any future time. But new light has been cast upon the subject, and with it my duty becomes plain, and the truth of history, and justice to all, calls for such impartial inquiry and authoritative judgment as a tribunal broad enough to embrace the whole question shall institute and pronounce, and the Congress of the United States is manifestly such tribunal.

The International Polar Expedition was organized and set in motion by the direct order of the President of the United States, pursuant to the authority vested in him by an act of Congress. Its progress and achievements have commanded the attention and challenged the admiration of foreign countries, and reflected new luster upon our own.

The magnitude of those achievements has only been paralleled by the disaster in which it terminated. That such disaster could have been averted, and that it was in no respect due to the commander of that expedition, can be established by indubitable evidence. The causes that co-operated to produce a tragedy that has appalled the civilized world, and the responsibility for such dire result, can be traced with certainty.

I therefore trust that this whole matter of the Lady Franklin Bay Expedition, and the expeditions organized for its relief, will be deemed worthy of a thorough investigation by Congress—a body that will perform its duty, and stand above the suspicion of being swayed by partisan considerations.

This expedition will stand among the foremost of its kind. It carried its work farther north than any other. It gained detailed geographical knowledge of greater breadth in that region than any other. It brought back more complete data upon physical problems than any other. It dispelled the myths and superstitions of Arctic living, and completed in a masterly way all the services it was sent to do, in the exact manner prearranged, and, having made a clear addition to the sum of human knowledge, returned to the place of rendezvous intact and perfect, and it is proper that the fault of failure afterwards be fully understood. Both Lieutenant Greely, in the Arctic, and the Signal Bureau, in Washington, carried out their parts of the pre-arranged plan of rescue literally and successfully in every particular.

This plan seemed to be a good one and Lieutenant Greely reiterated it after reaching his station and seeing what he wanted, and it proved to be good.

The sinking of the "Proteus," which terminated this success, which to that time was complete and faultless, was an accident for which there may or may not have been blame. But means to substantially restore the losses so incurred had been provided and were at hand. The "Proteus" was the best ship with the best captain for the purpose to be had, both being the same employed by Lieutenant Greely in 1881, and she was very perfectly supplied and well equipped. She was sent at the exact season then believed to be the best for the fullest chances of success, and she was accustomed to Arctic navigation. But when she sank the full responsibility for what followed rested with those on the spot, and it becomes necessary, in the fuller lights, to discuss it, that censure may not be misplaced. Besides the duty that necessarily reposed in the commander present, Lieutenant Garlington's orders read: "A ship of the United States Navy, the 'Yantic,' will accompany you as far as Littleton Island, rendering you such aid as may become necessary and as may be determined by the captain of that ship and yourself, when on the spot." This was all any commander so situated, imbued with a just appreciation of his duties and responsibilities, could wish.

Lieutenant Garlington failed when at Cape Sabine, July 22, to replace the spoiled parts of the cache of food previously left at Cape Sabine, as he was ordered in his instructions to do. Lieutenant Greely says of this, in a letter written by him for the Chief Signal Officer, April 30, supposing himself at the point of death: "had Lieutenant Garlington carried out your orders and replaced the 240 rations rum and 120 alcohol in English cache here, and the 210 pounds moldy English bread, spoiled English chocolate and potatoes, melted sugar, and the 210 pounds rotten dog biscuit we would without doubt be saved." Lieutenant Garlington saved from the wreck about 2,100 rations, they being but a part of those put upon the ice and could have been saved, which he landed at Cape Sabine These rations for Lieutenant Greely's party were priceless, they were worth many human lives. Of these rations he left for them about one-fourth part, and of this but about 150 pounds of meat, taking the remainder away in his boats for his own use; seeming only to limit the quantity taken by the capacity of his boats, when his men were strong and well, in the summer season, had suffered no hardships, were abundantly supplied with guns and ammunition, in a region full of game and walrus, in the neighborhood of the friendly Esquimaux, and with their faces set towards plenty. A proper appreciation of a sacred duty and of his obligation to his trust and to Lieutenant Greely would have shown him that two-thirds of these stores ought to have been left, and had this been done Lieutenant Greely says his party "would all have been saved." With one-third of the rations taken away and other resources at hand, the retreating party would have been reasonably safe. Besides, the food improvidently used and wasted, used for fuel, used to feed to repletion a dog, and left to waste in camps, would have saved human lives at Camp Clay.

On reaching Littleton Island it was found that its shores were literally lined with walrus, while there were in the hands of the party fifteen guns and some four or five thousand rounds of ammunition; a better supply than any expedition ever before had in those regions.

There is scarcely any room for doubt that in a few days the party could have killed and packed in the snow, as is often done with fresh meat in Dakota, walrus meat enough with stores in caches in the vicinity, and saved from the "Proteus," to have supplied the combined party of Lieutenants Garlington and Greely a wholesome and abundant ration for a year.

Lieutenant Ray says that at Point Barrow, under like circumstances, his party killed walrus enough in one day to have supplied his party a year.

Lieutenant Garlington reports that he left Littleton Island with his party for the south for the purpose of finding the escort ship and returning with it with supplies for Lieutenant Greely. But when he did reach it, only three days steaming away from Littleton Island, he made no demand to her captain for her return, while she had on board, as also had Governor Elborg at Upernavik, ample food available for this purpose.

The order of the Secretary of the Navy to the captain of the escort ship gave him latitude to remain at Littleton Island until near the close of the season, about September 30th; yet with a full knowledge of the distressing condition Lieutenant Greely would find himself in, and the whole plan of his rescue being familiar to him, he turned southward at once, a month earlier than required by the season, leaving nothing for Lieutenant Greely, and so intent was he to get south that he appears to have had the intention of leaving Lieutenant Garlington's party behind if not found in his path. The tone of this officer's utterances upon these subjects have impressed me with a want of efficient effort or intent on his part to perform his duties, disqualifying him for their loyal performance.

No language could be more just, and yet more severe, than that addressed by the Secretary of the Navy to Commander Wildes, after that officer had written a supplementary report to justify his conduct. I beg leave to cite the letter of the Secretary of the Navy, as follows:

NAVY DEPARTMENT,
Washington, November 2, 1883.

The receipt of your letter of October 16 is acknowledged. In the present aspect of the case the department condemns (1) the agreement inclosed in your letter of June 25 between Lieutenant Garlington and yourself contemplating the separation of the "Yantic" and the "Proteus" until August 25; (2) your failure to accompany the "Proteus" from Disco Island after you had there rejoined her; (3) your unnecessary visit to Upernavik on July 25 to inquire of the Danish authorities how the ice was probably moving between yourself and the "Proteus," the six days of your delay at which point would have brought you to Littleton Island before the party of the "Proteus" went south; and (4) your failure, when you found at Littleton Island that the demoralized party of the "Proteus" had gone south in search of the Swedish steamer "Sofia" at Cape York, to land materials for a habitation, clothing, and some food for the forgotten Greely party. What action, if any, will be taken by the department has not yet been determined.

Very respectfully,

WM. E. CHANDLER,
Secretary of the Navy.

Commander FRANK WILDES, U. S. Navy,
Commander U. S. S. "Yantic," Navy Yard, New York.

On the return of the escort ship, bringing the relief party to Saint John's, September 13, there was still time, as known from previous experience and shown by subsequent facts, to send effective relief, and my six telegrams from Washington Territory, where I then happened to be, attest the earnestness of my efforts to have this done. Besides this, Captain Melville and others volunteered to go, giving their full plans for the relief.

There is scarcely a doubt had any one of these five means I have pointed out been availed of, the untold sufferings at Camp Clay last winter would have been prevented and the entire party saved.

NOTE.—At no time after reaching Cape Sabine could Lieutenant Greely's party have crossed Smith's Sound to Littleton Island. While his men were strong the current was so swift, and so filled with masses of drifting ice, that there was not the slightest prospect of success, and any attempt could have ended only in drifting helplessly on some ice-floe, a condition from which, after thirty days, the party had just been rescued.

At Carey Islands, directly in Lieutenant Garlington's path, 100 miles south of Cape Sabine, there were 1,800 rations in the Nares cache in good condition, which he had inspected but six days previously. This made it unnecessary to take from Lieutenant Greely's stores at Cape Sabine more than four days' rations for his own party. This would have left for Lieutenant Greely 1,900 rations at Cape Sabine, and placed his safety beyond question.

SCIENTIFIC WORK.

I am pleased to acknowledge the courtesy of the following-named scientists who have responded to requests for information upon subjects under investigation by this bureau, viz:

On atmospheric electricity, Prof. H. A. Rowland, of Baltimore, and John Trowbridge, of Cambridge.

On atmospheric spectroscopy, Prof. C. S. Hastings, of Baltimore, Prof. S. C. Pickering, of Cambridge, Prof. W. Upton, of Providence, and Prof. C. S. Cook, of Hanover.

On barometry, Prof. A. W. Wright, of New Haven.

On chemical analyses of the air, Prof. E. W. Morley.

On earth temperatures, Prof. T. C. Mendenhall and Prof. Trowbridge.

On bibliography, numerous meteorologists, among whom may be mentioned Dr. George Neumayer, Dr. George Hellman, Dr. A. Lancaster, Dr. F. B. Hough, Prof. Elias Loomis, from each of whom valuable assistance has been received. It is specially gratifying to be able to add that the latter has consented to compile a summary of the results embodied in his twenty memoirs, entitled "Contributions to Meteorology," with much additional matter for publication as a professional paper. These laborious studies of Signal Service tri-daily weather maps cannot but prove of value to the science.

Prof. Cleveland Abbe, assistant, has continued in charge of the Study Room, and the work assigned to that division has been carried forward with gratifying results.

STANDARDS.

Extensive investigations have been made with a view of determining the most reliable methods of exposure of thermometers, and from the preliminary results thus obtained the office has improved its exposure of instruments at a number of stations.

Barometers.—The work of comparing the Signal Service standard with foreign standards has been continued, and the experiments looking to the construction of a normal barometer have resulted satisfactorily, and I have ordered a duplicate of the normal barometer for use in the Signal Service.

Sample anemometers used by the Signal Service have been compared with anemometers of foreign services, with a view of determining the possible errors in the wind records of this service.

Rain gauges of several varieties have been accurately compared for the purpose of determining the effect of exposure, wind velocity, and diameter of gauge upon the measured rainfall, and, if possible, to ascertain the law of variation of rainfall with altitude.

The necessity of accurate time at the various signal stations has been enforced by scientists engaged in the study of earth currents and electricity. The standard clock will be improved, and, if possible, arrangements will be made which will secure to the principal stations of the service correct time for observations.

Tables for the derivation of dew-point and humidity, based on Regnault's formula for the psychrometer, have been extended, and new tables will be computed as soon as the formula has been modified so as to agree with recent data obtained by this service from stations at Pike's Peak and Yuma.

The table of constants for reduction of barometer to sea-level continues in use, and this plan gives good, although not satisfactory results. It is hoped that some action may soon be taken by the meteorological service of the world which will lead to a uniform method of reductions of barometer readings to sea-level.

The system of study and observations of atmospheric electricity inaugurated in August, 1882, under the direction of Professors Rowland and Trowbridge has continued, and satisfactory progress reported.

By a careful investigation of this subject it is possible that a new and important element may be added to the regular tri-daily reports upon which are based the weather forecasts and storm warnings of the service.

At the request of the International Congress of Electricians, the Signal Service has undertaken to stimulate a general interest in the subject of electrical investigation and to secure the co-operation of professional electricians of telegraph and telephone companies in the work of distributing information collected by the Signal Service for the benefit of the public.

Several telephone companies are at present co-operating with this service in this important work.

Solar radiation.—By the recent studies of Professor Ferrel, of this service, a decided advance has been made in our knowledge of the requirements of a standard actinometer, and I have approved the plans submitted for the construction of such standard instruments.

Special study has been made of conditions attending the development of tornadoes, with a view, if possible, of adding warnings of the approach of these destructive storms to the regular weather forecasts of the service, but, at present, the results of these investigations do not justify an attempt on the part of this office to forecast the occurrence of tornadoes within a limited area, while the general conditions accompanying tornadoes may be announced with sufficient accuracy as to justify the prediction of violent local storms in threatened meteorological districts. This investigation will be continued.

The international agreement, by virtue of which each civilized nation has contributed its share towards meteorological and magnetic observations in the Arctic and Antarctic regions, has been complied with, and the data obtained from the stations established by the United States are being prepared for publication. It is confidently expected that the results obtained from the united action on the part of countries will prove of practical value in the preparation of weather forecasts in the future.

The detailed report of the work performed in the Study Room of this office is given in Appendix No. 4.

TELEGRAPH LINES.

The military telegraph lines built and operated by the Signal Service in the unsettled portions of country have not only proved of great service in operations, but they have added much to the accuracy of the Signal Service predictions and storm warnings. It is the policy of this service to discontinue these lines as soon as the commercial lines take their place, and during the year 112 miles of line were abandoned.

The lines at present operated are distributed as follows:

	Miles.
California and Arizona Division	510
Department of the Missouri	693
Northwestern Division	893
Texas Division	197
Washington and Idaho	500
San Francisco harbor	12

The total number of miles in operation at the end of the year was 2,805 miles. The total line receipts during the year were $39,003.76.

As anticipated in last year's report, the withdrawal of detailed men of the line of the Army from permanent duty with the military telegraph lines as operators and repairers, and the small force of Signal Corps men available for such duties, have seriously embarrassed this office in maintaining some of the more isolated sections in a proper state of efficiency. While such temporary assistance as is permitted under the provisions of General Orders No. 3 of 1884, Adjutant-General's Office, has usually been given freely by department and post commanders, yet, men thus temporarily detailed for a few days only, and without additional pay for such extra labor, could not be expected to do as efficient and lasting work as men permanently detailed, fitted by experience, and receiving just compensation, would have performed. Besides, the delay occasioned in applying for and getting ready a detail to start out on the line when a break occurred occasioned at times interruptions of much longer duration than would have been the case had there been permanent repairmen, ready to mount and start out at a moment's notice. Another point is to be considered in this connection. On some of the lines in Texas, New Mexico, and Montana it is almost impossible to hire labor when the operator is unable to make proper repairs alone; or, if labor can be had, the price asked is so excessive that the means at the command of this office will not permit its payment, so that either the repairs have to be made poorly by one man or the line has to remain open until the commanding officer at the nearest post can furnish a detail.

In view of the foregoing, it is recommended that a law be secured permitting the permanent detail of fifty enlisted men from the line of the Army for duty with the military lines, and payment of extra-duty pay to the same from line receipts, as in former years. It will be seen that the line receipts are now $14,000 in excess of the appropriation for their support.

In the California and Arizona division forty-seven miles were abandoned as no longer necessary for military purposes.

In the Department of the Missouri the short, isolated sections, connecting military posts with commercial offices, were equipped as telephone lines, and the larger lines, connecting two or more posts, continued to be operated as telegraph lines under the direction of post commanders. The lines from Gunnison to Uncompahgre, eighty-one miles, and from Rawlins to camps on White River, one hundred and forty-four miles, abandoned during the previous year, were sold at auction under authority from the Secretary of War.

The military lines in the Texas Division have, since the relief of the signal officer in charge, December 31, 1883, been under the immediate charge of an officer in this office. The extensive abandonment of lines in this division during the preceding year left but two hundred and sixty-two miles in operation at the beginning of the present fiscal year, and this was still further reduced by the abandonment, on September 5, of the line from Fort Concho to Coleman, sixty-five miles. Of the lines abandoned during the preceding and current years only eighty-eight miles of one section were retained and the remaining nine hundred and twenty miles were sold at auction by authority of the Secretary of War.

Five hundred miles of military telegraph lines were operated in the Washington and Idaho Division. The station at Tatoosh Island was connected by cable, two miles in length, with the land line terminating at Cape Flattery. A second cable, four miles in length, was laid across the mouth of the Columbia River, on October 10th, joining part of the military telegraph line, connecting Astoria with Fort Stevens. The points reached by these cables are of special value to the system of Signal Service reports intended for the Pacific coast weather service.

The necessary cables to complete the telegraphic connection of the military posts in San Francisco Harbor have been successfully laid during the year. In making these connections 4¼ miles of cable and 7½ miles of line were required.

In the northwestern division there remain 893 miles of telegraph line in operation after the sale of 1,061 miles of abandoned lines. That portion of this line which extends to the north of the North Pacific railroad should be kept in repair, as meteorological reports from stations on that portion of the line are of especial value in determining the advance of cold waves which are likely to be attended by damaging frosts.

The sea-coast telegraph line, extending along the coasts of New Jersey, Delaware, Maryland, Virginia, and North Carolina, is of great value to shipping, and, as a means of rapid communication, when assistance may be required, has, as in the past, proved valuable to the Signal Service and to the commercial interests of the country. The importance of maintaining this line and extending it along the entire Atlantic coast, where it may be practicable, cannot be well overestimated. The service has been able in past years to save from destruction and loss vessels and property the value of which exceeded the entire cost of maintaining the Signal Service. The signal stations along the coast line are manned by observers versed in the use of marine signals, and, being in connection with this office, are able to communicate to passing vessels the weather conditions as given from the central office. This is an important branch of the Signal Service work, and I earnestly recommend that an appropriation of $39,000 be made for the purpose of extending this line and placing the present part in thorough repair.

The appropriation for a cable to connect Martha's Vineyard with the main-land, being but one-half the original estimated cost of cable, it will not be possible to establish continuous and reliable connection with the main-land with the fund available.

INSTRUMENTS.

In the Meteorological Observatory of this office one thousand and sixty instruments were carefully compared with the standards, and instrumental error determined for each instrument. Six hundred and thirty-three instruments have been purchased, one hundred and ten manufactured and repaired, and one thousand and ninety-one instruments were returned from stations broken or for repairs. Six hundred and four instruments were issued to regular Signal Service stations, one hundred and twenty-one were issued to cotton-belt stations, and two hundred and thirty-three were examined and compared for private parties.

During the year a standard thermometer for low temperatures has been established by very careful and repeated comparisons of two fine Berlin thermometers with the air thermometer, and the results show that the calibration agrees well with the air thermometers. A series of comparisons of the air thermometers have also been made with the mercurial thermometer, and the results are being prepared for publication. A careful series of comparisons have also been made between six new Fuess barometers and the Adie standards, numbers 1526 and 1555, at this office, and the Green standard, number 1879. The results of these comparisons show that the standard barometer at Saint Petersburg is 0.014 lower than the Kew standard. The report of Junior Professor T. Russell, of the Signal Service, on the subject of comparison of instruments is given in Appendix No. 6.

STATIONS.

The number of stations in operation June 30, 1884, in the United States was four hundred and sixty-four. These include the telegraph stations, printing stations, display, special-river, cotton-region, and sunset stations. This shows an increase during the year of eighty-eight stations. In addition reports are received from twelve Canadian stations by the coöperation of the Canadian Meteorological Service.

Telegraphic reports are received at this office, daily, from one hundred and forty-seven stations.

During the year seven full reporting stations have been established an five discontinued.

The system of simultaneous reports taken by foreign observers has continued, and special effort has been made through the marine division of this office to induce captains of vessels to coöperate in this work, as by means of these reports valuable studies are made of storm movements after the center of disturbance has passed beyond the limits of land stations.

The total number of reports received from land stations is five hundred and forty-seven.

The total number of vessels reporting during the year is six hundred and fifty-nine.

In the collection of data for the purpose of studying ocean meteorology, this office is indebted to the New York Herald for the use of marine reports collected by that journal.

The total number of voluntary observers in the United States who have forwarded monthly reports to the Chief Signal Officer is three hundred and sixty-two.

The number of military posts sending observations is sixty-three.

Numerous requests have been made for the establishment of signal stations throughout the country, but the reduced appropriations have prevented the Chief Signal Officer from complying with these requests.

The work of the service could be made more valuable by an increase of stations, especially in the regions west of the Mississippi River and on the Pacific coast.

With the addition of fifteen stations the value of the weather predictions of this service would be greatly increased.

PACIFIC COAST WEATHER SERVICE.

I again call attention to the necessity of a separate office, under charge of an instructed officer, on the Pacific coast. The weather conditions there differ so markedly from those observed in other sections of the country that special study by an officer on that coast is required, in order that the citizens of that section of the country may receive the full benefits of the Signal Service reports. It is now my intention to assign an officer to duty at San Francisco the coming autumn, to take charge of this important work.

STATE WEATHER SERVICE.

The State meteorological services previously established, and co-operating with the Signal Service, have continued in operation, and excellent services have been added during the year in Alabama, Louisiana, and Minnesota, and efforts are being made to extend this service in other States.

Local services are now in operation in thirteen States, and I find that these organizations enable the Signal Service to distribute promptly in threatened districts general warning of approach of frosts, "northers," cold waves, and dangerous storms, with comparatively little expense.

These local services will bring the benefits of the Signal Service to the people of every county of the State in which they are properly organized. They will make it possible for this service to organize a system of storm signals to be displayed from railway trains for the benefit of those interested in agriculture.

The report of the assistant, who has had charge of the organization of these services, will be found in Appendix No. 7.

MISCELLANEOUS.

The railway weather signals have continued on three lines in Ohio with gratifying results, and it is probable that these signals will be carried by other roads in that State during the coming year. These signals have also been displayed over the Cumberland Valley Railroad and the Frederick division of the Pennsylvania Railroad during the year, and special signals, indicating the character of the weather, have recently been adopted and are now in operation on the principal railroads in Alabama, under the direction of the chief of the Alabama weather service.

The Louisiana weather service has also arranged for the display of frost signals on railroads passing through the sugar region of that State. The information upon which all these signals are displayed is telegraphed from this office.

A system of river reports, by means of which this office is enabled to give timely warning of the rise and fall of rivers and the approach of dangerous floods, has been continued, and will be greatly extended and improved during the current year, as a special appropriation has been made with this in view.

The system of flood-warnings at Chattanooga has been perfected, and is highly commended by the citizens of that locality as a valuable service. (See Appendix No. 8.)

Special reports for the benefit of the cotton interests, the frost-warnings to fruit and tobacco growers, and the announcement of the approach of "northers," have been continued.

The Farmers' Bulletins and the Railway Bulletins are still distributed, and a new feature has been added to the former, by means of which special notice is given of the approach of cold waves. As these bulletins are displayed at more than eight thousand post-offices, and as many postmasters have provided themselves with flags, which. when displayed, indicate the approach of a cold wave, it is believed that much benefit will result from the information thus conveyed.

As an illustration of the value of Signal Service reports to the medical profession I will invite attention to the series of charts prepared at the request of the Colorado State Medical Society. These charts exhibit, graphically, the average cloudiness and the average weight of vapor contained in a cubic foot of air, or the absolute humidity, during each season of the year in the various sections of the country. Appendix No. 9 contains a report with the charts above mentioned.

PERSONNEL.

The work of the service is done by twenty officers and 500 enlisted men. The men are distributed as follows: At the Office of the Chief Signal Officer are 181; on telegraph lines, 106; at Fort Myer, 41; on station, 163. The others are on leave for sickness or other causes. Five of these officers are now at the school of instruction at Fort Myer, leaving but fifteen for the work of the Signal Service, a less number than at any time previous for years.

PROPERTY AND DISBURSEMENTS.

The methods of administering the duties of the Property and Disbursing Division of the office have been much improved, every advantage being taken of a possible opportunity to decrease the labor and at the same time to maintain the efficiency and accuracy of the work.

Advantage has also been taken of the experience of years to perfect a system of accountability for public money and property which would admit of no adverse criticism, and at this time there is nothing to suggest in the way of improvement.

The methods of verifying and settling accounts in this bureau are those prescribed by the Army Regulations, and are identical with those which govern in the Quartermaster's Department. The same auditor and comptroller who examine the accounts of all quartermasters, examine the accounts of the disbursing officer of this office.

By a judicious economy the most efficient service which the curtailed appropriations would admit of has been obtained, and I append a report of the condition of the appropriations for the fiscal year ending June 30, 1884, with expenditures thereunder, and balances unexpended at the end of the year, with probable demands on such balances, as required by act of Congress, approved May 1, 1829.

PUBLICATIONS.

The Monthly Weather Review has been improved during the year by the addition of a large chart, which now makes it possible to trace a storm on a single chart from the Pacific coast to the east portion of the north Atlantic Ocean.

This publication contains a careful summary of the meteorological conditions occurring during the month, each meteorological element being treated separately.

It also contains extracts from bulletins issued by the local State service. In previous years these reviews have been republished as a part of the Annual Report of the Chief Signal Officer, but the edition of 2,500 now issued will doubtless satisfy the demand, and I have therefore discontinued its publication.

The Monthly Summary and Review treats specially of international meteorology, and is based upon the 7 a. m. simultaneous report which is made by co-operating observers and published daily at this office as the International Bulletin.

The work of preparing for publication the Meteorological Record has been continued and several volumes are now ready for the printer. The value of this work to those wishing to study meteorology cannot be overestimated, and great care has been taken to guard against errors.

Professional Paper No. XIII, "Temperature of the Atmosphere and the Earth's Surface," by Prof. Wm. Ferrel. The general subject of this paper is treated under the following four subdivisions: 1. The relative distribution and the variations of solar radiation; 2. Conditions determining temperature; 3. Actinometry; 4. The distribution and variations of temperature. This is a paper of original research, comprising sixty-nine quarto pages, in which the principles, methods, and results are for the most part entirely new. In general, only so much of what was already known on the different branches of the subject has been introduced as was necessary in the further prosecution of research on the subjects. From the general formulæ and principles, however, although entirely new, taken in the fullest and most general extent of their applications, many results have been deduced which are not claimed to be new.

A volume is also in a forward state of preparation by the same author, intended to comprise the best and most useful parts of all scientific papers which have been published, systematically arranged so as to form a treatise on the "Progress and recent advancements of the higher Meteorology." In this treatise will be comprised whatever is considered most appropriate and important in the various meteorological papers of original research and others by different authors and published in different parts of the world, the simpler parts of the paper on "The Temperature of the Atmosphere and the Earth's Surface," and of the several parts of the "Meteorological Researches" published by the Coast and Geodetic Survey, but all presented by more popular methods, better adapted to learners than the methods in the original papers, in which it was generally supposed that the reader was familiar with what had been already published on the subjects.

Professional Paper No. VII, "Report on the Character of Six Hundred Tornadoes," by Sergeant J. P. Finley, Signal Corps, U. S. Army, has been revised and republished.

The following Signal Service Notes have been issued during the year:

Signal Service Note No. X, "Report on Lady Franklin Bay Expedition of 1883," by Ernest A. Garlington, first lieutenant, Seventh Cavalry, Acting Signal Officer.

Signal Service Note No. XI, "The Elements of the Heliograph," by Frederick K. Ward, first lieutenant, First Cavalry, Acting Signal Officer,

Signal Service Note No. XII, "The Special Characteristics of Tornadoes, with Practical Directions for the Protection of Life and Property," by Sergeant J. P. Finley, Signal Corps, U. S. Army.

There has also been published during the year "The Danger, Distress, and Storm Signal Code," intended for the use of Signal Service sea-coast stations and mariners. This publication contains all the messages of the International Code likely to be used by vessels desiring to communicate near the coast, with brief directions for using the code, and in addition a new storm-signal code which will make it possible for any vessel passing within range of a signal station to receive weather indications or storm warnings by means of the signals used in the International Code.

With a well-equipped sea-coast line this weather code will prove a great service to the shipping interests of the country.

NOTES.

The post of Fort Myer, maintained as a recruiting station and school of instruction for officers and men of the Signal Corps, is being steadily improved as the very limited means available will permit, and it is hoped that it will become, in a few years, in every way creditable to the service.

A new office-building, adapted to the wants of the service, is imperatively needed, both for economical work and for the safety of the invaluable records of data accumulated in fourteen years of observation, now jeopardized by being stored in insecure buildings. Drawings and estimates are now on file in the office of the Secretary of War, with letters fully setting forth these facts.

A completed organization for the Signal Corps is of the greatest importance. By retaining the experience of officers who have served for long periods in this service great economies can be secured each year, serious mistakes can be avoided and excellence of service can be obtained in no other way.

The following plan is submitted, and is now believed to be all that is required:

LEGISLATION NEEDED BY THE SIGNAL SERVICE.

To be added to the Signal Corps, with the rank and pay of officers of like grade of cavalry:

1. One colonel.
2. One lieutenant-colonel.
3. One major and disbursing officer.
4. Eight captains; and the second lieutenants of the Signal Corps, after eight years of service as second lieutenants, may be appointed by the President, first lieutenants; and after fourteen years' service as lieutenants, may be appointed, by the President, captains. And the

one hundred and fifty sergeants of the Signal Corps shall be composed of three classes, twenty-five of the first class, who shall have the pay proper of $50 a month; fifty of the second class, who shall have the pay proper of $40 a month; and seventy-five of the third class, who shall have the pay proper of $34 a month, the same as now; and all the sergeants, corporals, and privates of the first class of the Signal Corps shall be known as "observers of the signal service."

I am, sir, very respectfully, your obedient servant,

W. B. HAZEN,
Brig. and Bvt. Maj. Gen'l, Chief Signal Officer, U. S. Army.

Hon. ROBERT T. LINCOLN,
Secretary of War.

APPENDIX No. 1.

STANDING ORDERS FOR THE SIGNAL SERVICE SCHOOL OF INSTRUCTION AND THE POST OF FORT MYER.

INSTRUCTIONS }
No. 97. }

SIGNAL OFFICE, WAR DEPARTMENT,
Washington, August 15, 1884.

The following compendium of orders and instructions governing the Signal Service school of instruction for officers and enlisted men, and the post of Fort Myer, Virginia, replaces that published by Instructions No. 20, from this office, series 1883; it will be inserted in the "Office Regulations" after paragraph 580. The officer in charge at Fort Myer will see that these instructions are literally caried out.

W. B. HAZEN,
Brig. & Bvt. Maj. Gen'l, Chief Signal Officer, U. S. A.

OFFICIAL:

B. M. PURSSELL,
2d Lieutenant, Signal Corps, U. S. Army.

CHAPTER XXIII.—STANDING ORDERS FOR THE SIGNAL SERVICE SCHOOL OF INSTRUCTION AND THE POST OF FORT MYER, VIRGINIA.

GENERAL INSTRUCTIONS.

581. Fort Myer, Virginia, is maintained as a Signal Service school of instruction. (Ins. 106, 1882.)

582. The Chief Signal Officer is in immediate command of the post. During his absence beyond post limits, the senior officer present will assume the duties of officer in charge. (Ins. 31, 1883.)

583. Fort Myer will be maintained as a first-class station whenever a class is under instruction, at other times as a third-class station. (Ins. 74, 1883.)

584. The enlisted men under training will be known as "men under instruction." The enlisted men not under instruction, but necessary to the maintenance of the post, will be known as the "permanent party." (Ins. 106, 1882.)

585. The Articles of War will be read to each recruit within six days after his arrival at the post; also to the entire command every six months. (Letter, Feb. 14, 1884.)

586. A copy of the "Hand-book for the Signal Corps" will be issued by the officer in charge to each enlisted man, not already supplied, joining the station (the permanent party excepted). This book is to be accounted for on discharge by delivery to the sergeant or other enlisted men left in charge of the station where the order for discharge is received. Enlisted men, though not required to commit the entire text of the "Hand-book" to memory, will thoroughly familiarize themselves with its contents. (G. O. 41, 1884.)

587. The post-quartermaster will assume the same personal detailed control and management of quartermaster's duties and work as is usual at military posts, and shall be subjected to the same responsibilities. (Letter, March 27, 1882.)

588. No renter, or other person on the Arlington estate, will dispose of any hay, straw, fodder, or manure, so that it will be deposited off from that property. (Letter, April 26, 1882.)

589. No private service will be rendered by persons in the public employ excepting the proper furnishing of necessary supplies, which is usual in the military service; and such work as may be done with the free consent of the persons doing it, in their own time, as is customary in the military service, and for which they will be paid, as may be arranged between the parties. (Letter, March 22, 1882.)

DRILLS.

590. Men under instruction will be drilled twice daily (see par. 612), an hour at a time, every Monday, Tuesday, Wednesday, Thursday, and Friday, excepting holi-

days. During inclement or excessively hot weather drills will take place in barracks. (Ins. 106, 1882.)

591. All drills will be superintended by a commissioned officer, who will be present at drill, and, when squads are assembled, will drill in person. There will be a rest of five minutes after each period of exercise of twenty minutes, and at no other time. (Ins. 106, 1882.)

592. The greatest attention will be paid to the "setting up" of the men under instruction, and the rigor applied to it at the Military Academy at West Point will in no case be abated. The utmost courtesy and fair treatment will be extended to all under instruction. (Ins. 106, 1882.)

593. Squads of recruits, as soon as they report, shall be formed for signal drill, twice a day (see par. 612), under the best available sergeants, to be overlooked by an officer. (Letter, July 6, 1882.)

594. A neat and soldierly habit and carriage will be, at all times, practiced, and the officer in charge will promptly correct any violation of this, either by enlisted men or officers.

595. The permanent party will receive such drills and instruction, under direction of the officer in charge, as is usual for garrison troops. (Ins. 106, 1882.)

596. Drills for men under instruction:

School of the Soldier (dismounted.)—Twelve weeks; to page 73, Cavalry Tactics.

School of the Company (dismounted).—Four weeks; page 73 to page 113, Cavalry Tactics.

School of the Platoon.—Four weeks; page 173 to page 202, Cavalry Tactics.

In place of three drills, three lessons in learning by heart and reciting pages 402 to 409, inclusive, of Cavalry Tactics. In place of each fourth drill of all the above, there will be recitations upon the drill indicated. The number of men in squads will in no case be in excess of that described by the tactics. In all drills, the maximum of time will be devoted to instruction and exercises, and the minimum will be devoted to marching. The officer of the day will be present at and supervise all roll-calls and formations for duty, and will be responsible for their proper performance, and will state in the guard report that he has done so. (Ins. 106, 1882.)

CALLS.

597. Calls will be sounded as follows:

Reveille, 1st call	5.15	a. m.
Reveille	5.25	
Assembly	5.30	
Breakfast	5.40	
Stable call	6.00	
Drill (1st call, 6.30 a. m.)	6.35	
Fatigue call	7.00	
Sick call	7.30	
Recall from drill	7.35	
Guard-mounting (1st call, 7.40 a. m.)	7.45	
School call	8.00	
Recall from fatigue and school	12.00	m.
Dinner immediately after recall from fatigue.		
School call	1.00	p. m.
Fatigue call	2.00	
Recall from school	4.00	
Drill (1st call, 4.10 p. m.)	4.20	
Recall from drill	5.20	
Stable call	5.39	
Recall from fatigue	6.00	
Supper immediately after recall from fatigue.		
Retreat, 1st call, 10 minutes before sunset.		
Assembly, 2 minutes before sunset.		
School call immediately after retreat.		
Tattoo, first call	9.00	
Tattoo	9.10	
Assembly	9.15	
Extinguish lights	9.30	

Sundays.

Inspection (1st call, 820 a. m.)	8.30	a. m.
Guard-mounting immediately after inspection.		

All other calls, excepting for drill, fatigue, and school, the same as on other days.

Evening school will be from retreat until tattoo, and the men under instruction will continue at their studies during that time.

For the winter months fatigue call will be at 8 a. m. and 1 p. m, and recall at 12m. and 4.30 p. m.

GUARD DUTY.

598. Men under instruction will perform guard duty, but after two months' service they will be relieved at tattoo. They will not be subject to ordinary fatigue duty, and will be given no special or general duty interfering with the drills and hours prescribed for study and school exercises (except as per par. 612.) (Ins. 106, 1882.)

599. After the first two months of guard duty men under instruction will be relieved from guard after guard-mounting, and will then repair to their quarters for study and exercises during study hours. The guard-house during this time will be left in charge of the corporal of the guard, who will continue his studies there. The corporal of the guard will not be excused from lectures or instruction. When released from quarters the men will repair to the guard-house for guard duty. Three men of the permanent party will be turned off with the guard during this time as supernumeraries; they will be dismissed after guard-mounting to their ordinary garrison duties, and not called for guard until tattoo, when they will be posted for the night. Each man under instruction will have four tours of guard duty as non-commissioned officers. (Ins. 106, 1882.)

600. When there are no prisoners, men on guard will be required to attend telegraph practice, and recitations. When there are prisoners nothing will be allowed to interfere with guard duty; in such cases a special report will be made in connection with the report of men under instruction during the week. (Letter, Feb. 15, 1884.)

601. Enlisted men in confinement, charged with purely military offenses, not involving criminal elements, must keep up their studies and appear at recitations. (Letter, March 31, 1884.)

HOURS.

602. The hours for field practice will be prescribed by the officer in charge, in accordance with orders received from the Chief Signal Officer, and will include such time as may be necessary. (Ins. 106, 1882.)

603. During the prescribed hours men under instruction will either study in their rooms, present themselves in the recitation rooms, or work at field exercises, as may be prescribed. The officer of the day will inspect, morning, afternoon, and evening, to see that these directions are strictly followed. The weekly course of study will continue from Monday morning until 12 m. Saturday, all recitations on Saturday being held before 12 m. A schedule showing the hourly occupation of each man during study and field exercise hours will be kept by the senior instructor, as part of the permanent records of the school. (Ins. 106, 1882.)

REPORTS.

604. The following reports will be rendered by the officer in charge:

1. Annual report.
2. Monthly statement of enlistments, discharges, &c.
3. Monthly report of fire inspections. (See par. 654.)
4. Weekly reports of drills and instruction.
5. Morning report of the Signal Corps. (L. R. 1845, Sig., 1884.)

605. The weekly reports of instruction will receive the supervision and remarks of the officer in charge. (Letter, Jan. 15, 1881.)

606. The officer in charge will report the names of the enlisted men under instruction, in each class, who give evidence of special qualifications for any particular duty. (Letters, May 20 and 25, 1882.)

607. The weekly reports of the school for officers will state the number of weeks necessary to complete the unfinished part of the course of instruction. (Ins. 36, 1884.)

COURSE OF INSTRUCTION FOR ENLISTED MEN.

608. The following comprises the course of instruction for enlisted men:
Drills and recitations in tactics. (See par. 596.)

THEORETICAL COURSE.

First. Recitations in Cavalry Tactics, as prescribed by par. 596.

Second. Manual of Signals—Myer.

1st lesson, to "alphabetic elementary code," page 36.
2d " to "general applications," page 56.

3d lesson, to "day signals," page 76.
4th " to "field signals by three elements," page 96.
5th " from page 144, "homographic code" to "chronosemic signals," page 164.
6th " from page 164 to "open communication, &c.," page 180.
7th " from "description of equipments," page 189, to "candle bombs," page 207.
8th " from page 216, "composition fires" to "care of signal equipments," page 222, and from "telescopes and their uses," page 231, to "heliograph," page 240.
9th " from "heliograph," page 240, to "manual of the kit," page 261.
10th " from "manual of the kit," page 261, to middle of page 276.
11th " from "selecting stations," &c., page 276, to "complicating signals," page 305.
12th " from "signalling in cipher," page 319, to page 331, and from page 344, "route cipher," to "modes," &c., page 356.
13th " from "field telegraph train," page 381, to "recover the line," page 390.
14th " from page 390 to "general directions," page 396.
15th " review 1st, 2d, and 3d lessons.
16th " review 4th, 5th, and 6th lessons.
17th " review 7th, 8th, and 9th lessons.
18th " review 10th, 11th, and 12th lessons.
19th " review 13th and 14th lessons.

Third. International Code of Signals.

1st lesson, to "boat signals," part III.
2d " from "boat signals," to par. 12, page 12, part III, and all of "danger, distress, and storm-signal code."

Fourth. Modern practice of the electric telegraph—Pope.

1st lesson, chap. IV to par. 70, page 42.
2d " from par. 70 to par. 77, page 47, and from par. 87, page 57, to par. 103, page 64.
3d " chap. VI to par. 122, page 78, and chaps. VII and VIII.
4th " review chap. IV to par. 77, page 47.
5th " review from par. 87, page 57, to par. 103, page 64, and chap. VI to par. 122, page 78, and chaps. VII and VIII.

Fifth. Manual of Signals.—Myer.

1st lesson, from "permanent lines," page 402, to bottom of page 425.
2d " from top of page 426 to middle of page 448.
3d " from page 448 to "telephones," page 469.
4th " "telephones."
5th " review 1st and 2d lessons.
6th " review 3d and 4th lessons.

Sixth. Meteorology.—Loomis.

1st lesson, chapter I.
2d " chap. II to par. 52, page 34.
3d " from page 34 to bottom of page 53.
4th " chap. III.
5th " chap. IV to par. 140, page 79, omitting pars. 125 and 126.
6th " from page 79 to sec. II, page 93.
7th " from sec. II to bottom of page 107.
8th " sec. V to page 122.
9th " sec. VI to chap. VI, page 136.
10th " chap. VI to sec. II, page 147.
11th " sec. II to chap. VII, page 160.
12th " chap. VII to sec. III, page 173.
13th " "auroras" to par. 383, page 193, omitting pars. 357 to 369, inclusive.
14th " review to par. 70, page 44.
15th " review from page 44 to par. 140, page 79.
16th " review 6th and 7th lessons.
17th " review 8th and 9th lessons.
18th " review 10th and 11th lessons.
19th " review 12th and 13th lessons.

Seventh. Instructions to Observers.

1st lesson, par. 1 to par. 42, inclusive.
2d " par. 43 to par. 61, inclusive.
3d " par. 62 to par. 107, inclusive.
4th " par. 108 to Form 50, page 59, inclusive.
5th " meteorological forms to Form 114, page 70, inclusive.
6th " Form 115 to Form 203, page 80, inclusive.
7th " Form 204 to par. 144, inclusive.
8th " par. 145 to par. 178, inclusive.
9th " par. 179 to par. 258, inclusive.
10th " par. 259 to par. 306, inclusive.
11th " review 1st and 2d lessons.
12th " review 3d and 4th lessons.
13th " review 5th and 6th lessons.
14th " review 7th and 8th lessons.
15th " review 9th and 10th lessons.

Special Instructions, Instructions to special River Observers, and rules for the government of military telegraph lines, to be carefully read.

PRACTICAL COURSE.

(See par. 596.)

609. *Wand practice*, one hour daily (see par. 612), from time of reporting at For Myer, until a rate of eight words per minute (receiving) is attained, and until ready for field signaling.

610. *Telegraph practice—Morse code*—Daily (see par. 612), two hours, until a rate of fifteen words per minute (receiving), and one hour, until a rate of twenty-five words is attained. Men attaining the latter rate will be excused from regular practice.

611. *Military signaling*.—Twelve days and four nights, general service code, short and 4-mile ranges; three days, international code; two days, homographic code; and one day, route cipher; three days, heliograph practice, general service code; three days, heliograph practice, Morse code. Ranges to be selected by the instructor.

612. *Practical duties of meteorological observers*.—A detail of two men will be made each day for instruction in the practical duties of observers, under the immediate supervision of the sergeant in charge of the observatory; *men serving on this detail will be excused from all other duties except recitations*. This will be the first on the list of details for the ensuing day. The men will be instructed in the use and method of cleaning and keeping in order all instruments used at stations of the Signal Service, and in making out all the different meteorological and property forms required from observers. Also in the manner of conducting official correspondence, briefing letters, treating inclosures, &c.

613. *Penmanship*.—Instruction in practical penmanship will be given until a fair and legible hand is attained. Copy-books and copies will be furnished by the instructor.

614. All enlisted men, except the permanent party, will be instructed in the use and connections of repeaters, telephones, and call-bells; setting up and cleaning of batteries; use, construction, and connections of Morse and other instruments used in the Signal Service telegraph offices; climbing, and the building and repairing of land-lines; the application of lightning conductors to lines and offices; methods of splicing and connecting submarine cables and land-lines; establishing terminal and intermediate stations; and finding the position of, and repairing faults in, telegraph lines and instruments. (Ins. 106, 1882.)

615. After the completion of the theoretical course the instructor will lecture on the following subjects:

I.—METEOROLOGY.

Importance of the science in its relation to—

1. Health.
2. Farming communities.
3. Commerce.

II.—THERMOMETERS.

1. General ideas of heat and expansion, linear and cubic.
2. The air thermometer.
3. Absolute zero, Fahrenheit's zero, Centigrade zero.
4. Calibration—Bessel's, Pettingen's, Neumann and Thiesen's, and Russel's methods.
5. Determination of the freezing-point.

6. Determination of the boiling-point.
7. Sudden and slow changes of the fiducial points of mercurial thermometers.
8. Comparison of thermometers.
9. Signal Service correction-cards.
10. Radiation.
11. Conduction.
12. Thermal properties of lamp-black, polished silver, mercury, glass, rock-salt, water, aqueous vapor, dry air.
13. Bright-bulb thermometers.
14. Black-bulb thermometers.
15. Bright and black bulbs in vacuo.
16. Solar radiation; relative observations.
17. Effects of heat as manifested:
    - *a.* In expansion and contraction.
    - *b.* In changes of season.
    - *c.* In permanent difference of temperature between equatorial and polar regions.
    - *d.* In evaporation and condensation.
    - *e.* Upon the land.
    - *f.* Upon the sea.
    - *g.* Upon the irregularities of the continent.
18. Temperature of the air:
    - *a.* Its fluctuations.
    - *b.* Its daily mean.
    - *c.* Its monthly mean.
    - *d.* Its annual mean.
    - *e.* Its distribution.
    - *f.* Its variation with the depth below the earth's surface.
    - *g.* Its variation with the height above the earth's surface.
19. Diurnal variation of the temperature of the air during the night-time.
20. Diurnal variation of the temperature of the air during the day-time.
21. Vertical distribution of temperature in the free air:
    - *a.* General ideas on the mechanical theory of heat.
    - *b.* Law of diminution of temperature in ascending dry air.
    - *c.* Law of diminution of temperature in ascending moist air when no condensation takes place.
    - *d.* Diminution of temperature when condensation takes place, namely, inside of cloud masses.
    - *e.* Law of warming in descending masses of air; explanation of the Föhn.
22. Geographical distribution of atmospheric temperature:
    - *a.* Meech, theoretical distribution of solar radiation.
    - *b.* Actual distribution of temperature by isotherms.
    - *c.* General average temperature of the whole globe.
        - (a.) Northern hemisphere.
        - (b.) Southern hemisphere.

III.—BAROMETERS.

1. Pressure of the air:
    - *a.* Fluctuations, periodical and irregular.
    - *b.* Diurnal range.
    - *c.* Diminution with elevation above earth.
    - *d.* Distribution.
    - *e.* Tides.
2. Areas of high and low pressure.
3. Siphon barometer.
4. Corrections for instrumental errors and peculiarities:
    - *a.* Graduation errors of the scale and elastic stretch or set.
    - *b.* Temperature of the scale.
    - *c.* Temperature of the mercury.
    - *d.* Impurity and density of the mercury.
    - *e.* Capillarity in the tube and in the cistern.
    - *f.* Imperfect vacuum (Arago's method) and tension of mercury vapor.
    - *g.* Verticality.
    - *h.* Variation of gravity with latitude (Wild's correction table).
    - *i.* Variation of gravity with altitude.
5. Aneroid barometers:
    - *a.* Vidi, 1850.
    - *b.* Naudet.
    - *c.* Goldschmid.

6. Construction and handling.
7. Setting
8. Corrections for.
9. Comparisons of barometers:
    - *a.* Reading forward and backward.
    - *b.* Constant personal errors.
10. Signal Service barometer correction-cards.

IV.—WIND STORMS.

1. Cause of the motion of the air.
2. Constant and periodical winds.
3. Wind direction.
4. Tornadoes and hurricanes.

V.—ANEMOMETERS.

1. Arbitrary wind scales:
    - *a.* Mannheim, 0–4.
    - *b.* French, 0–7.
    - *c.* Beaufort, 0–12.
    - *d.* Signal Service, 0–8.
    - *e.* International, 0–10.
2. Wind pressure. Rouse's formula: pressure (pounds per square foot) $=0.005\times$ velocity^2 (miles per hour).
3. Velocity anemometers:
    - *a.* Robinson.
    - *b.* Hagemann.
4. Pressure anemometers:
    - *a.* Wild.
    - *b.* Lind.
    - *c.* Osler.
5. Relations between pressure and velocity and shade of body:
    - *a.* Hagen, and plane surfaces.
    - *b.* Robinson, Dohrandt and Thiesen, and hollow hemispherical cups.
6. Thiesen's formula for Robinson's anemometer.
7. Dohrandt's formula for Wild's tablet anemometer.
8. Abbe's combined barometer and anemometer.

VI.—AQUEOUS VAPOR AND HYGROMETERS.

1. Clouds, fog, dry fog, mist, kind of clouds. Upper and lower clouds. Velocity, direction, and height of clouds. Various appearances due to clouds—halos, coronæ, sun's drawing water, &c.
2. Rain, snow, and hail:
    - *a.* Cause of precipitation of the moisture of the air.
    - *b.* Its distribution over the earth's surface.
    - *c.* Influence on precipitation of the ocean, mountain ranges, winds, and the seasons.
3. The general functions and importance of aqueous vapor.
4. Dew-point, vapor tension, weight of vapor, relative humidity, evaporation.
5. Various methods employed and corresponding apparatus.
6. Regnault's theory of the action of the wet-bulb thermometer, based on the consideration of the convection of the heat by a gentle current of air.
7. The deduction of Regnault's formula from the following fundamental hypotheses:
    - *a.* That the thin layer of air that supplies heat to the wet-bulb thereby falls to the temperature t'.
    - *b.* That the heat used up in evaporation comes only from this thin layer.
    - *c.* That this layer is completely saturated at the temperature t'.
8. Maxwell's theory of the action of the wet-bulb thermometer, based on the consideration of the radiation, conduction, and diffusion of heat and moisture.
9. The deduction of Maxwell's formula from the following fundamental hypotheses:
    - *a.* That the thin layer of air is quiescent and supplies heat to the wet-bulb only by conduction and radiation.
    - *b.* That the moisture evaporates only by a process of diffusion.

VII.—LOCATION OF STATIONS AND INSTRUMENTS.

1. Importance of an accurate determination of the elevation of meteorological instruments.

2. The points on the instruments from which measurements should be made.
3. Elevation of the barometer cistern:
   a. The universal fixed "base," mean low tide, mean high tide, or mean tide.
   b. The "plane of reference," such as railroad track at depot, level of one of the great lakes, or some well-known and permanent point accepted by civil engineers.
   c. A "fixed point," near the base of the building in which the office is located.
4. Elevations above ground of the thermometers, rain-gauge, anemometer, anemoscope or wind-vane.
5. Leveling by:
   a. Tape-line.
   b. Spirit-level.
   c. Barometer.
   d. Boiling-point of water.
   e. Trigonometrical methods.
6. Latitude.
7. Longitude.
8. Time.

VIII.—ACTINOMETERS.

1. Pouillet.
2. Herschel.
3. Violle.
4. Crova.
5. Langley.

IX.—MAGNETIC APPARATUS.

1. General idea of terrestial magnetism as presented by Gauss.
2. Formulæ for the action of the earth or other body upon magnetic needle.
3. General description of the declinometer or unifilar magnetometer; methods of making and reducing observations of declination and horizontal force.
4. General description of the vertical circle, methods of making and reducing observations of the inclination of the needle.

X.—ELECTRICITY.

1. Atmospheric.
2. Ground currents.

XI.—SUN SPOTS.

1. The nature of sun spots; theories of Herschel, Secchi, Young, and others.
2. Connection between sun spots and disturbances of the earth's magnetism.
3. Periodicity and apparent connection with the meteorology of the earth.

XII.—AURORAS.

1. Description of the different appearances.
2. Connection with electricity and magnetism.
3. Height of the aurora.
4. Different explanations of the phenomenon offered by scientists.

XIII.—PERIODICITY IN METEOROLOGCAL PHENOMENA.

XIV.—GRAPHIC METHODS OF REPRESENTING METEOROLOGICAL DATA.

616. Notes of each lecture will be made by the men under instruction, and the class will recite on the subjects treated of. The men will be marked on the notes and recitations of each lecture, and these marks will form an important consideration in determining the relative standing of the men at the time of graduation.

617. The lectures will be so prepared as to give the men under instruction useful and practical information as Signal Service observers.

618. The examination of the class under instruction will take place so as to be completed by the end of the sixth month of the course. (Ins. 106, 1882.)

COURSE OF INSTRUCTION FOR OFFICERS.

619. The following comprises the course of instruction for officers:

THEORETICAL COURSE.

First. Cavalry Tactics.

1st lesson, from "sabre exercise," page 31, to "inspection of arms," page 65.
2d " from "inspection of arms," page 65, to "to face the line," &c., page 93.

3d lesson, from "to face the line," &c., page 93, to "school of the battalion dismounted," page 114.
4th " from page 114, "school of the battalion dismounted," to "school of the soldier mounted," page 133.
5th " from "school of the soldier mounted," page 133, to "manual of the sabre, mounted," page 165.
6th " from "manual of the sabre, mounted," page 165, to par. 523, page 193.
7th " from par. 523, page 193, to "charge," page 233.
8th " from "charge," page 233, to "school of the battalion," page 270.
9th " from "ceremonies," page 410, to "funeral honors," page 451.
10th " from "funeral honors," page 451, to bottom of page 484.
11th " review 1st, 2d, and 3d lessons.
12th " review 4th, 5th, and 6th lessons.
13th " review 7th, 8th, 9th, and 10th lessons.

Customs of Service.—Kautz.

1st lesson, to "military justice," page 78.
2d " from page 78 to "retiring board," page 126.
3d " from page 126 to "regimental staff," page 169.
4th " from page 169 to "captain," page 223.
5th " from page 223 to "officer of the day," page 260.
6th " from page 260 to "commanding officer," page 317.
7th " from page 317 to end of book, page 380.

Second. Manual of Signals.—Myer.

1st lesson, to top of page 65.
2d " from top of page 65 to top of page 95.
3d " from top of page 95 to top of page 180.
4th " from top of page 180 to page 222, "care of signal apparatus."
5th " from page 222 to bottom of page 241.
6th " from top of page 242 to page 276, "selecting," &c.
7th " from page 276 to page 305, "complicating signals."
8th " from page 305 to page 344, "route ciphers."
9th " from page 344 to page 381, "field telegraph train."
10th " from page 381 to page 402, "permanent lines."
11th " review to top of page 95.
12th " review from page 95 to page 222, "care of signal apparatus."
13th " review from page 222 to page 276, "selecting," &c.
14th " review from page 276 to page 344, "route ciphers."
15th " review from page 344 to page 402, "permanent lines."
16th " general service of Signal Corps, page 490 to end of book; balance of book to be taken after Prescott (sixth).

Third. Cipher Manual.

1st lesson, to middle of page 53.
2d " to end of book.

Fourth. International Code of Signals, and Danger, Distress, and Storm-Signal Code.

1st lesson, to "boat signals," part III.
2d " part III, "boat and coast signals," to par. 12, page 12, and "Signal Service Official Distress and Danger Signals."

Fifth. Military Surveying.—Mendell.

1st lesson, to bottom of page 27.
2d " to bottom of page 44.
3d " to "sextant," page 60.
4th " to bottom of page 77.
5th " to "Mason's level," page 96.
6th " to "locate or plot," page 116.
7th " to end of chap. VI, page 131.
8th " chaps. VII and VIII, to page 152.
9th " chap. IX to middle of page 171.
10th " to end of book.
11th " review 1st and 2d lessons.
12th " review 3d and 4th lessons.
13th " review 5th and 6th lessons.

14th lesson, review 7th and 8th lessons.
15th “ review 9th and 10th lessons.

Sixth. Electricity and the Electric Telegraph.—Prescott.

1st lesson, chaps. I, II, and III to bottom of page 24.
2d “ chaps. IV, V, and VI to bottom of page 46.
3d “ chap. VII to bottom of page 63.
4th “ chaps. VIII and IX to bottom of page 85.
5th “ chaps. X and XI to bottom of page 102.
6th “ chaps. XII and XIII to bottom of page 129.
7th “ chaps. XIV and XV to “reflecting or mirror galvanometers,” page 148.
8th “ from page 148 to bottom of page 166.
9th “ chap. XVI to bottom of page 184.
10th “ chap. XVII to bottom of page 201.
11th “ chap. XVIII to bottom of page 224.
12th “ from bottom of page 224 to “measurements by Wheatstone Bridge,” page 241.
13th “ from page 241 to bottom of page 261.
14th “ chap. XXI to bottom of page 280.
15th “ chaps. XXII and XXIII to “construction of land lines in England,” page 307.
16th “ from page 307 to bottom of page 336.
17th “ chap. XXV to bottom of page 354.
18th “ chap. XXVI to “specific resistance of insulators,” page 373.
19th “ from page 373 to “duration of variable state,” page 393.
20th “ from page 393 to bottom of page 413.
21st “ chaps. XXIX and XXX to “arrangement for terminal stations,” page 455.
22d “ from page 455 to bottom of page 477.
23d “ chap. XXXI to “the direct working polarized ink-writer,” page 513.
24th “ remainder of chaps. XXXI and XXXII (omitting chap. XXXII as far as “apparatus for working submarine cable,” page 552) to bottom of page 561.
25th “ chap. XXXIII to “Stearns' differential duplex,” page 795.
26th “ from page 795 to bottom of page 824.
27th “ chaps. XXXIX and XL to “W. U. standard quadruplex,” page 851.
28th “ from page 851 to bottom of page 882.
29th “ chaps. XLII and XLIII to “differential galvanometers,” page 909.
30th “ from page 909 to page 923.
31st “ chap. XLIV to “remarks on bridge,” page 937.
32d “ from page 937 to end of book, page 963.
Review, 16 lessons, each equal to two advance lessons.
Total lessons, 48.

Seventh. Manual of Signals.

1st lesson, from “permanent lines,” page 402, to “telephones,” page 469.
2d “ “telephones,” page 469 to page 490.

PRACTICAL COURSE.

620. *Wand practice—General Service code.*—Daily, not less than two hours, and to be continued until the rate of ten words per minute, receiving, is attained. Practice to begin after 1st lesson in Manual of Signals.

621. *Telegraph practice—Morse code.*—Daily, not less than two hours, until able to receive at the rate of fifteen words per minute. When from any cause there is no field work, drawing, or recitation, these hours to be doubled.

622. Practical instruction to be given in setting up the Marean repeater, telephones, Morse instruments and batteries, splicing and connecting cables and land lines, and use of galvanometer and resistance coils.

623. *Military signaling.*

1st day, G. S. code, 4-foot flags, Fort Myer and Naval Observatory.
2d day, G. S. code, 4-foot flags, Fort Myer and Washington Monument.
3d day, G. S. code 2-foot flags, Fort Myer and Washington Monument. Torch practice at night.
4th day, G. S. code, 4-foot flags, Fort Myer and Soldiers' Home.
5th day, G. S. code, 2-foot flags, Fort Myer and Soldiers' Home. Torch practice at night.
6th day, G. S. code, 4-foot flags, Fort Myer and Soldiers' Home. Cipher disk, 1st case.

7th day, G. S. code, 4-foot flags, Fort Myer and Soldiers' Home. Cipher disk, 2d case. Torch, cipher disk, 1st and 2d cases.
8th day, G. S. code, 4-foot flags, Fort Myer and Soldiers' Home. Cipher disk, 3d case.
9th day, G. S. code, 4-foot flags, Fort Myer and Soldiers' Home. Cipher disk, 4th case. Torch, cipher disk, 3d and 4th cases.
10th day, G. S. code, 2-foot flags, Fort Myer and Soldiers' Home. Countersign word.
11th day, G. S. code, 4-foot flags, Fort Myer and Soldiers' Home. Route cipher. Torch, route cipher.
12th day, G. S. code, 4-foot flags, Fort Myer and Soldiers' Home. Opening station and communication without a preconcerted code.
13th day, 4-foot flags, Fort Myer and Soldiers' Home. Opening communication without preconcerted code.
14th day, G. S. homographic code. Fort Myer and Naval Observatory.
15th day, hunting station from Fort Myer.
16th day, G. S. code. Repeating stations, short ranges.
17th day, International code, flag.
18th day, G. S. code, 4-foot flags, Soldiers' Home and Munson's. Torch practice.
19th day, International code, flag.
20th day, International code, distant signals.
21st day, G. S. code, 15-mile range, 4-foot flags. Torch at night.
22d day, heliograph, G. S. code, Fort Myer and Soldiers' Home.
23d day, heliograph, G. S. code, Fort Myer and Soldiers' Home.
24th day, heliograph, G. S. code, Fort Myer and Soldiers' Home.
25th day, heliograph, Morse code, Fort Myer and Soldiers' Home.
26th day, heliograph, G. S. code, Fort Myer and Munson's.
27th day, heliograph, G. S. code, Fort Myer and Munson's.
28th day, heliograph, Morse code, Fort Myer and Munson's.
29th day, heliograph, Morse code, Fort Myer and Munson's.
30th day, "puffs and flashes" (chronosemic), bombs and rockets at night.
31st day, heliograph, Fort Myer and Sugar Loaf Mountain.
32d day, same.

624. A day's practice will consist of at least five hours', and a night's practice of at least three hours', work, and, to be satisfactory, the following number of messages must be sent and an equal number received, each message to contain not less than ten words, excluding address and signature, viz:

Short ranges: flag, 20 messages; torch, 8 messages.
Intermediate (9-mile) range: flag, 15 messages; torch, 6 messages.
Long ranges (15 miles): flag, 10 messages; torch, 4 messages.
Long ranges (water): flag, 10 messages; torch, 4 messages.
International signals: 60 hoists made; 60 hoists read.
Heliograph: 30 messages.

When using cipher, and in repeating stations and working over the longest range with heliograph, one-half the above numbers will be required.

625. *Military surveying.*—Fifteen days' field work, with sextant, plane table, compass and level; work to begin as soon after September 1st as practicable.

626. *Mapping.*—Field-notes to be entered on map on days when out-door work is not practicable.

627. *Field sketching.*—Ten lessons, to be distributed through the course, each lesson embracing a complete field sketch of the country indicated by the instructor, to be taken on the field. The character and kind of work required is comprehensively indicated on pages 167 to 184, Mendell's Military Surveying, which will be the text-book used, and from which the instructor will carefully elaborate the work he requires. Finished drawings are not desired, but field sketches produced with such material as can be easily carried. The officer in charge will give especial attention to the carrying out of this instruction, and the sketches will be exhibited at the conclusion of the course. In making these sketches the "Topographical Field Note-book" of the Engineer Corps of the Army will be used.

628. The lectures, and the recitations upon the subjects treated of in them, will be so arranged as not to interfere with the current recitations, which will not be omitted. (Ins. 133, 1881.)

BUILDINGS, QUARTERS, AND GROUNDS.

629. All buildings of whatever nature or kind constructed at Fort Myer, Virginia, will be placed either on the extension of the main line of officers' quarters or upon parallels or perpendiculars to that line. No wooden part of any building will be placed nearer than eight (8) inches to the earth at any point. (Ins. 49, 1882.)

630. The necessary quarters shall be set apart for the permanent use of the officer in charge and instructors. (Letter, April 15, 1881.)

631. Walking on any part of the prepared grounds is prohibited; the walks and roads only will be used. In summer the lawns and parades will be mown once each week. (Letter, Dec. 1, 1883.)

632. The use of the ground at the Soldiers' Home, in this city, has been obtained for the purpose of instructing the class at Fort Myer in military signaling; enlisted men will be cautioned against pulling flowers, damaging property, or littering the grounds. (Letter, Sept. 28, 1883.)

ROOM REGULATIONS.

633. At "school call" all men under instruction will at once repair to their rooms or other places especially designated, and the hours prescribed for study will be exclusively devoted to this purpose. (See par. 612—Ins. 72, 1882.)

634. Within 20 minutes after reveille, rooms will be put in complete order. (Ins. 72, 1882.)

635. Each man will, immediately after reveille, put such articles in the clothes-bag as it is intended to contain, arrange his bedding and all his other effects in the prescribed order. He will also attend to the good order and arrangement of his own arms, accoutrements, clothing, and other effects. (Ins. 72, 1882.)

DUTIES OF ROOM ORDERLY.

636. An orderly will be detailed for each room occupied by men under instruction, and will perform the duties for one week, unless otherwise directed. (Ins. 72, 1882.)

637. The orderly will see that the names of all the occupants of the room are on the orderly board, his own name being first. He will be responsible for the cleanliness of the wash-stand, shelves, and other fixtures, for the general police of the room, and for the strict observance of regulations and orders therein. He will be strictly responsible for the preservation of all public property attached to the room. Every morning, immediately after reveille roll-call, he will thoroughly sweep every part of the room, brush the dust from the furniture, sweep the dirt into a pile, and deposit it in the place provided for that purpose, to be removed by the janitor before guard-mounting. He will see that a light is in his room immediately after evening school-call. After tattoo, and at or before taps, he will cause all lights in the room, not authorized, to be extinguished. He will answer promptly and fully every official question put to him by proper authority concerning his duty as orderly. Whenever an orderly is absent from his room, or is prevented by sickness from attending to his duty, the occupant longest off duty, who is present for duty, will perform the duties of orderly, and be accountable for their faithful discharge, in the same manner as if regularly detailed. (Ins. 72, 1882.)

638. Room orderlies will change after Sunday morning inspection. (Ins. 7, 1882.)

639. During call to quarters, between twenty minutes after reveille and tattoo, the following arrangement of furniture, &c., will be required:

Forage-caps, belts, sabers, spurs, hung on pegs; white helmets on clothes-press, over muzzle of carbine.

Carbines in gun-rack.

Arms will not be taken to pieces unless by permission of a commissioned officer, nor under any circumstances will attempts be permitted to beautify or change the finish of the exterior by altering the metallic or wooden parts. The surface of the bore will be protected from rust by occasional use of an oiled rag.

Bedsteads: against side wall of room, the head against end wall of room.

Bedding: mattress to be folded once. Blankets and sheets to be neatly and separately folded, so that the fold shall be of the width of the pillow, and piled at the head of the bedstead in the following order, viz: mattress, sheets, pillows, and blankets, the front edge of the sheets, pillows, &c., to be vertical.

The overcoat will be neatly folded and placed on top of the pile of bedding. On Sunday afternoon the beds may be made down and used.

Books: the books issued by the instruction department and other authorized books will be placed in book-rack.

Clothes-press: brushes (tooth and hair), combs, shaving implements and materials, such small boxes as may be allowed, vials, &c., to be arranged on upper shelf. Collars, gloves, handkerchiefs, socks, shirts, drawers, &c., to be neatly arranged on the other shelves, the heaviest articles on the lower shelves.

Arrangement: all articles of the same kind are to be carefully and neatly placed in one pile; the folded edges to be to the front and even with the front edge of the shelf. Nothing will be allowed between these piles of clothing and the back of the press, unless the want of room renders it necessary.

Soiled clothes to be kept in clothes-bag; shoes and overshoes to be kept cleaned, dusted, and arranged in a line at the side and near the foot of the bedstead.

Locker at foot of bedstead.

The dress-coat, helmet, blouse, and pants to be kept in locker.

Broom, dust-pan, brush, and duster to be kept in corner behind the door.

Tables in the middle of the room.

Chairs, when not in use, to be against the owners' tables.

Looking-glass, against the wall near wash-stand.

Wash-stand to be kept neat and clean.

Towels neatly folded and hung on racks.

Curtains: curtains of clothes-press to be kept drawn, except when policing room. Front window curtain will be kept up during call to quarters, from reveille to tattoo.

Floor to be kept clean and free from grease spots and stains.

Walls and wood-work to be kept free from cobwebs, and not injured by nails or otherwise.

Names, uniformly printed, will be posted over pegs, clothes-press, and on orderly boards. Baskets, pictures, clocks, statues, trunks, boxes, and uniform clothing are not allowed in quarters.

The use of shoe brushes and blacking in quarters is prohibited.

Musical instruments, or the implements used in chess, backgammon, or any other game, will not be introduced into barracks. (Ins. 72, 1882.)

640. Articles of food will not be taken into quarters, and no man shall bring, or cause to be brought, within the limits of the post, any spirituous or intoxicating liquor, or have the same in his room or otherwise in his possession. (Ins. 72, 1882.)

641. The arms or other public property shall not be taken from quarters except for duty, and no man shall lend or exchange his arms or accoutrements, or use those of any other man, without permission of the officer of the day. (Ins. 72, 1882.)

642. Men are prohibited from having in their possession any description of fire-arms or other weapons not issued to them by proper authority. (Ins. 72, 1882.)

643. No man shall post any placard or notice upon any of the public buildings, or affix to the walls of his room any map, picture, or piece of writing, without the permission of the officer in charge. (Ins. 72, 1882.)

644. No man shall introduce a citizen into barracks during study hours, upon any pretence whatever; nor at any time, except by permission of the officer in charge. (Ins. 72, 1882.)

645. Civilian clothing will be packed in trunks, which will be stored in a safe and suitable place, and no trunks or civilian clothing will be permitted in quarters, nor shall enlisted men be permitted to wear the same, or to keep the same in their possession, unless they are on furlough for not less than twenty-four hours. This applies equally to all enlisted men at Fort Myer. (Ins. 1, 1882.)

646. Hair: Every man will have his hair neatly cut (cropped) at least once in each month, and between the 1st and 10th days. A book showing the name of each man and the date of hair-cutting will be kept in the barber-shop. Men under instruction will always appear for duty, including lectures and recitations, with hair neatly brushed, shoes blacked, and dress in a neat condition. (Ins. 72, 1882.)

647. Tobacco: The use of tobacco is prohibited during study hours, and in quarters at all times. Men may smoke on piazza of barracks during release from quarters. (Ins. 72, 1882.)

648. Animals: No pet or other animal will be kept. (Ins. 72, 1882.)

649. Baths: All men will bathe at least once a week, and a book will be kept by the 1st Sergeant, in which will be entered names and dates showing when each man bathes. (Ins. 72, 1882.)

UNIFORM.

650. The following articles of uniform are prescribed for men under instruction:

Cuffs: Of white linen; ordinary pattern.

Collar: Of white linen; a plain standing collar one and one-half inches wide, according to pattern deposited in the Office of the Chief Signal Officer.

Cravat: A plain black stockband with buckle, according to pattern deposited in the Office of the Chief Signal Officer.

This is intended to give men in the school a neat appearance, and not in the sense of any change of the prescribed uniform. (Ins. 72, 1882.)

651. The adoption of white helmets renders straw hats, formerly authorized on the frontier, now unnecessary, and their use is prohibited. (Letter, July 26, 1883.)

INSPECTION.

652. At Sunday morning inspections at Fort Myer the Regulations of the Army, Article LXX, paragraphs 1320-1345, will be strictly followed, including the exercising of the troops and the march in review, in two ranks, at which all enlisted men, except the guard and sick, will be present. After this, all stables, animals, quarters, guard-house, bakery, and hospital will be carefully inspected by the officer in charge, and steps taken to correct all defects and irregularities. (Ins. 74, 1882.)

653. Each Saturday afternoon teamsters will be required to clean their wagons, take apart and clean their harness, and then put their teams in complete order for inspection on Sunday. (Ins. 74, 1882.)

654. With a view to insure the utmost possible security against fire, the officer in charge, the post quartermaster, and the medical officer, will, on the 15th day of each month, carefully inspect all the buildings of the post, giving special attention to the fires, flues, and other places where it is possible for fire to originate or communicate. The officer in charge will make a full report, in writing, of each inspection. (Letter, June 28, 1883.)

POLICE.

655. The police of quarters of the enlisted men will be inspected by the officer of the day, each day, between 20 minutes after reveille and 8 a. m., and once afterwards during study hours, when the utmost exactness of arrangement and cleanliness of rooms, furniture, bedding, clothing, &c., will be required, and violations in this respect reported and corrected. (Ins. 106, 1882.)

656. Every Saturday, immediately after 1 p. m., there will be general police of the entire post under the eye of the officer of the day, at which duty all men present at the post will attend, except the guard and sick; the work will be continued until the entire post is thoroughly policed. (Ins. 106, 1882.)

657. Two men of the permanent party will be detailed to report to the police sergeant for continuous police duty. These two men will actually sweep, each day, the roads, gutters, and walks of the whole post, excepting one day each week, when they will go over the road from the cemetery to the aqueduct bridge. (Letter, Nov. 6, 1883.)

ADMINISTRATION AND SUPPLY.

658. For purposes of administration and supply the enlisted men of the Signal Corps, U. S. Army, will be divided equally into a battalion of four companies. (S. S. O. 31, 1881.)

659. The officer in charge at Fort Myer, Virginia, will be, *ex officio*, the battalion commander. (S. S. O. 31, 1881.)

660. The post quartermaster at Fort Myer, Virginia, is designated the battalion quartermaster. (S. S. O. 31, 1881.)

661. All requisitions for clothing and equipments will be sent to the battalion quartermaster on Form 49. To save expense, these requisitions will be sent in semi-annually, in time to reach Fort Myer before the 15th day of March and the 15th day of September of each year, so that the articles may be shipped with the regular supplies to stations. Requisitions at irregular periods must be accompanied by explanations of necessity to justify the irregularity. (S. S. O. 31, 1881.)

662. The men on duty at the office of the Chief Signal Officer will make their requisitions for clothing on the first days of January, April, July, and October. (S. S. O. 90, 1881.)

663. All accounts of the enlisted men of the Signal Corps will be kept under the direction of the officer in charge at Fort Myer. (S. S. O. 31, 1881.)

664. All discharges, final statements, and other papers relating to soldiers' accounts, except enlistments and the warrants of non-commissioned officers, will be prepared at Fort Myer. (S. S. O. 31, 1881.)

665. Whenever application for discharge is made upon grounds of physical disability, the forms prescribed by General Regulations, 1863, will be used so far as they are practicable. (S. S. O. 31, 1881.)

RECRUITING AND DISCHARGE.

666. All recruiting for the Signal Corps will be done at the Office of the Chief Signal Officer, and the following rules will be observed in discharging men:

1. The officer in charge at Fort Myer, Virginia, will sign all final statements of men discharged at this office, and will also prepare all discharge papers, in such cases, for the signature of the Chief Signal Officer, the character to be left blank, excepting in the cases of men serving at Fort Myer. In cases of expiration of term of service these papers will be sent to the Office of the Chief Signal Officer without notification, and in time to be received here on the day of the expiration of enlistment. No descriptive list will be forwarded to this office in such cases, but a copy of all final statements will be furnished for file here.

2. Discharge papers and final statements for men on station will be made up, on notification from this office, to prospective date of discharge, and will not be signed. They will be accompanied by descriptive lists signed by the officer in charge at Fort Myer, Virginia. (Letter, February 5, 1883.)

MUSTER AND PAY ROLLS.

667. The enlisted force of the Signal Corps will be divided into three detachments, for the purpose of payment only, and each detachment will be paid upon its own rolls, as follows:

1. The enlisted men on duty at Fort Myer, Virginia, will constitute Detachment One; those on duty at this office, Detachment Two; and those whose stations are elsewhere than at this office or Fort Myer, Detachment Three. Detachment One will be paid bi-monthly, and Detachments Two and Three, monthly. The pay-roll of Detachment One will be prepared and signed, in triplicate, by the officer in charge at Fort Myer, Virginia, two copies to be forwarded to the paymaster and one copy to be retained at Fort Myer.

2. Bi-monthly muster rolls of the companies of the corps, as now constituted, will be prepared and signed, in duplicate, by the officer in charge at Fort Myer, Virginia, with payment last made previous to the date of said muster, and by whom, noted thereon, with all other data as to station, &c., as required by the notes on the muster-rolls. One copy of these muster-rolls will be forwarded to the Adjutant-General of the Army, through this office, within fifteen (15) days after muster.

Recruits will be so assigned as to keep the companies of equal size as nearly as possible. (Letter, February 5, 1883.)

POST GARDEN AND GREENHOUSE.

668. The post garden is provided for the benefit of the enlisted men, whose needs will be supplied from it. Should there be more than is necessary for this purpose, officers and their families may be supplied. (Letter, March 22, 1882.)

669. The benefits of the greenhouse will be enjoyed by all at the post. Such flowers and plants as would otherwise go to waste may be used for private purposes and persons may own plants and pots that may be kept in the greenhouse, which will receive such care as shall not interfere with the necessary space of the house and the necessary time of the keeper. Flowers that are usually cut will be so distributed that all belonging to the corps (so far as may be) will be equally benefited, and especially will this be observed with the sick and the enlisted men on holidays and social occasions; but in the management of the greenhouse, its chief purpose will always govern, that is, to propagate plants to suitably and tastefully ornament the grounds of the post, as is usual in such public grounds. (Letter, March 22, 1882.)

MAIL.

670. The mail will be sent to the post-office and the central office in sealed pouches by ambulance or market-wagon at their regular trips. (Letters, June 2 and 15, 1882.)

DOMESTIC ANIMALS.

671. Domestic animals that are useful, and such as are usually kept at military posts, may be owned and kept at Fort Myer, but they will be subsisted entirely from private means. (Letter, March 22, 1882.)

672. Enlisted men who own cows may have the use of pasturage free, but not of cut hay, all of which must be used for animals entitled to public forage.

673. Officers permanently stationed at the post may each keep one cow on the public grounds. The hospital and married men will also be allowed to keep one cow each, and no more, and the milk will be sold to enlisted men, if needed, and the post council shall regulate the price. (Letter, July 20, 1882.)

674. No cattle, except milch cows as prescribed, will be kept at Fort Myer. (Letter July 20, 1882.)

675. The officer in charge shall establish rules which will effectually guard against cows getting into the garden or orchards. (Letter, Feb. 5, 1884.)

PUBLIC ANIMALS.

676. Public animals will not be ridden, except by special direction of the officer in charge, at any other pace than a walk or trot. All violations of this paragraph will be severely punished. (Letter, April 26, 1881.)

677. Public animals at Fort Myer shall be used as follows:

1. For messengers when especially necessary.
2. For officers when on mounted duty; also to ride when the horses require exercise, but not to be driven in harness.
3. One horse for market-wagon when there is no mule.
4. The three 4-mule teams shall be used for ordinary hauling, and shall be driven complete except when necessity requires that they be used as 2-mule teams.
5. Public animals will not be used for private purposes. (Letter May 29, 1883.)

678. Special care will be given to the neat and proper appearance of all teams and riding animals leaving the post, and the officer in charge will require such careful inspection of teams and messenger horses as will insure this. (Ins. 20, 1883.)

679. Officers entitled to horses may keep them in the public stables and pastures. No other horses will be kept by them at the post.

680. The officer of the day will attend "Stable Call," morning and evening. He will see that all public animals are properly groomed, and that each animal receives daily nine pounds of grain and fourteen pounds of hay, in three feeds if practicable, otherwise in two feeds. He will sign a certificate with the guard-report at the end of his tour of duty that this work has been done. (Ins. 48, 1884.)

681. The public mules (market wagon excepted) will not be driven on pavements faster than a walk. (Ins. 7, 1884; Letter March 15, 1884.)

682. The use of wagons forming any part of a signal telegraph train, for the transportation of commissary and quartermaster stores, or for any purpose, other than the necessary drills, the construction and repair of telegraph lines, and the transportation of telegraphic material, is prohibited. (G. O. 9, 1869.)

683. The calls will be so arranged that there will be a full half hour at "Stable Call" for the men to groom the public animals after they arrive at the stable. (Letter, Nov. 27, 1883.)

684. Men under instruction will be taught the principles and first practice of grooming, after which they will be exempt for the better prosecution of their duties. With this exception, grooming will be done by the permanent party. (Ins. 106, 1882.)

PERMANENT PARTY.

685. The permanent party under the direction of the officer in charge will be constituted as follows, and will perform the following prescribed duties, and such other duties as he may direct:

1 1st Sergeant.
1 Sergeant or Corporal, who shall assist the 1st Sergeant and do clerical duty.
1 Quartermaster Sergeant, in charge of corrals and public animals.
1 Police Sergeant, in charge of all policing of the post, of warning all laborers required from Freedman's Village and renters; and who shall prevent trespassing on public grounds, and grounds adjoining road to aqueduct bridge.
1 Quartermaster's clerk, who shall have immediate charge of Quartermaster's stores.
1 Clerk, who shall have charge of the rolls of Signal Service men.
1 Engineer.
1 Plumber and tinner, who shall have charge of the bath-house, heaters for dormitories, water-closets, and lamps.
1 Farmer, who will be a corporal, and a good, practical, farmer and gardener.
1 Janitor.
1 Blacksmith (civilian).
1 Tailor.
1 Hospital steward.
1 School-teacher.
1 Baker.
1 Saddler, on ordnance extra duty.
1 Carpenter.
1 Painter.
2 Buglers.
3 Cooks, two for men's mess and one for hospital.
11 Teamsters and laborers.

The officer in charge will, without delay, arrange the permanent party according to the foregoing, recommending for discharge all those now in service not thoroughly competent to form the most efficient party practicable. (Ins. 165, 1882.)

686. The engineer, plumber, blacksmith, tailor, saddler, carpenter, painter, buglers, hospital cook, teamsters, and laborers, will be liable for detail, when not needed in their special work, for any labor the officer in charge may require; and especially in working in the garden or on the farm and grounds. (Ins. 165, 1882.)

687. No married men will in future be enlisted in the permanent party, nor will any of those now married be re-enlisted, or any single man be permitted to marry without the written authority of the Chief Signal Officer. (Ins. 165, 1882.)

688. Men temporarily employed at the post to put the grounds in order will not be put at work on farm or garden, but enlisted men of the permanent party will do the work of the garden and farm. When the need for labor is greatest, the plumber, saddler, engineer, tailor, and all other artisans, teamsters, and laborers, will be employed in the garden, or at other duties, as they may be needed. This will apply to the hospital cook, buglers, and baker, except when the quartermaster shall say that they

are required at their trades or public works, for at least one-half day at a time. (Ins. 20, 1883.)

689. All enlisted men will live at the post. (Ins. 20, 1883.)

TELEGRAPH LINES.

690. 2d Lieutenant James A. Swift, Signal Corps, U. S. Army, shall have charge and supervision of all telegraph lines running between the Signal Office and Fort Myer, and shall be furnished such assistance as he may desire for their repair. (Letter, July 6, 1881.)

691. Whenever a fault occurs in the telephone line between the Signal Office and Fort Myer it will be repaired by a detail from the post. (Letter, June 29, 1881.)

COURTS-MARTIAL AND BOARDS.

692. Courts-martial and boards of survey shall sit at hours that will not interfere with recitations. (Letter, July 20, 1881.)

693. In all examination of enlisted men at or from Fort Myer, Virginia, the board will sit in uniform and the men will appear in uniform. (Ins. 76, 1884.)

APPENDIX 2.

REPORT OF OFFICER IN CHARGE OF FORT MYER.

FORT MYER, VA., *August* 15, 1884.

GENERAL: I have the honor to submit the following report for the fiscal year ending June 30, 1884:

At the commencement of the fiscal year First Lieut. F. K. Ward, First Cavalry, acting signal officer, was on duty at this post as officer in charge and instructor, with Second Lieut. James A. Swift, Signal Corps, as assistant instructor.

On the 29th of January, 1884, I assumed charge of the post by virtue of Special Orders, No. 11, War Department, Office of the Chief Signal Officer, dated January 28, 1884, relieving Lieutenant Ward. Junior Professor Frank Waldo was assigned to duty as instructor by the same order.

Five officers, namely, First Lieut. Thomas M. Woodruff, Fifth Infantry; Second Lieut. R. B. Watkins, Signal Corps; Second Lieut. J. C. Walshe, Signal Corps; Second Lieut. B. M. Purssell, Signal Corps; Second Lieut. F. M. M. Beall, Signal Corps, were instructed in the prescribed course for officers during the year.

Lieutenants Woodruff, Watkins, and Walshe were under instruction at the commencement of the fiscal year. Lieutenants Purssell and Beall reported October 25, 1883.

Lieutenant Woodruff completed his course and was relieved from duty at this post December 20, 1883; the remaining four officers were ordered in for examination June 24, 1884. Lieutenants Watkins and Walshe completed the full course. Lieutenants Purssell and Beall had not fully completed the course in military signaling; there were remaining seventeen days of long-range practice unfinished.

Sixty-six enlisted men reported for instruction during the year. Of this number 1 was promoted to the rank of sergeant and assigned to duty as post school-teacher, 1 was assigned to duty as telegraph operator at the Office of the Chief Signal Officer, and 1 was discharged for incompetency.

On March 10, 1884, Lance Sergeant Heathcote reported for duty and was placed in charge of the observatory, being assigned to this duty by order of the Chief Signal Officer for the practical instruction of the enlisted men in station duties. Previous to this, Lieutenants Watkins, Walshe, and Purssell were detailed from time to time for this duty, but owing to their time being almost entirely taken up with their own studies and post duties but little time could be devoted to this part of the instruction for the enlisted men, and much embarrassment was caused thereby until the arrival of Sergeant Heathcote. This non-commissioned officer has been faithful in the discharge of his duties.

The theoretical and practical course of instruction, as prescribed by the Chief Signal Officer, has been closely followed, and the results have been highly satisfactory.

All enlisted men under instruction have been thoroughly drilled. The late orders of the Chief Signal Officer requiring that these men be examined as to their proficiency in drill and military appearance, by the board of examination, has had good effect in causing endeavors on the part of the men to take more pride in this part of the course of instruction.

First Sergeant Mahoney deserves credit for the manner in which he has perfected the men in drilling.

The men of the permanent party, with the exception of the older members, have not received the amount of drills usual for garrison troops, owing to the small number and urgent need for work at the post.

Last fall the quarters for the married enlisted men were put in good repair and made very comfortable. No changes have been made to other public buildings at the post further than to keep them in good repair.

Improvements of the public grounds have continued during the year, requiring a great amount of hard work, but which have been attended with good results.

The police of the post has been excellent under the immediate supervision of Police Sergeant Sullivan. He has performed his duties with credit.

All orders of the Chief Signal Officer have been literally carried out. In no other way could the improvements have been carried on so successfully and so much work accomplished.

On assuming charge of the post it was found necessary to adopt more stringent measures, with a view of compelling the renters to come up and work out their rent. Many of these people were found to be from four to six years in arrears.

Owing to the failure of Congress to provide extra-duty pay it has been difficult to obtain good men for the permanent party. Two desertions occurred during the year on this account. The post garden this year bids fair to give an abundant yield of vegetables, and no efforts have been spared to bring about this result.

Sergeant John O'Connell has remained in charge of transportation, and of the garden and farm work, and has given entire satisfaction.

Commissary Sergeant Casey has remained on duty at this post during the year. Sergeant Casey is an excellent commissary sergeant and attentive to his duties.

Sergeant Wm. H. Signor has continued as acting quartermaster sergeant, and his duties have been well performed.

Sergeant Rudolph Peters, the company clerk, was assigned to duty at the office of the Chief Signal Officer June 10, 1884, per Special Orders No. 72, in addition to his duties at this post. Sergeant Peters's papers have always been a model of neatness and correctness. The entire force comprising the permanent party have performed their duties well and satisfactorily.

I am, general, very respectfully, your obedient servant,

JAMES A. SWIFT,
Second Lieutenant Signal Corps.

To the CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.

APPENDIX 3.

REPORT OF OFFICER IN CHARGE OF THE PROPERTY AND DISBURSING DIVISION.

WASHINGTON CITY, *July* 15, 1884.

CHIEF SIGNAL OFFICER OF THE ARMY:

SIR: I have the honor to submit the following statement of the work of the property and disbursing division for the fiscal year ending June 30, 1884, as required for the annual report of the Chief Signal Officer.

No changes of importance have occurred in the personnel of the division since last report.

One hundred and thirty-four dollars and eighty cents have been received during the year from the sales of maps and other office publications as allowed by the act of Congress approved March 30, 1874.

In the "Settlement of accounts" room there have been employed a force of eleven men during the year, and in addition to the settlement of all accounts growing out of the disbursement of the regular appropriations controlled by this office, the pay accounts of the entire corps are examined, prepared for settlement and settled through this room; during the year of the former there have been nearly 9,000 accounts settled, and of the latter, 16,474 have been handled.

The methods of verifying and settling accounts in this Bureau are those prescribed by the Army Regulations and are identical with those which govern in the Quartermasters' Department, and being fixed by law no change can be made in the system.

The same Auditor and Comptroller who examine the accounts of all quartermasters examine the accounts of the disbursing officer of this office.

Many private persons, institutions of learning, &c., purchase their instruments through this office, because of the advantage afforded to obtain greater accuracy, by having the instruments compared with our standards, for which no extra charge is made. Of these there have been purchased 293 instruments at a total cost of $1,775.30.

Five hundred and one instruments of various kinds have been purchased during the year, for the use of this service, and 847 have been issued since last report.

The average cost of maintaining each station of observation during the year, including cost of printing and additional cost of life-saving stations, exclusive of cost of telegraphic services, and the pay and allowances of the men on duty at each, has been $404.87 against $305.83 last year. This increase is caused from the fact that the additional cost of the printing stations and on the seacoast line were not included in the cost last year. (See Exhibit A.) From this exhibit it will be seen that while Mount Washington, N. H., cost $1,700, Cairo, Ill., cost only $6.55, so that although $404.87 is given as the average cost, it is by no means to be understood that each station cost on an average that amount per annum.

While the sum total shows an apparent decrease in the letters sent and received, there has been an actual increase of 25 per cent. in the regular correspondence during the year; the difference being due to the small number of circular letters sent in comparison with former years, and the fact that three letters were formerly used in transmitting pay to enlisted men, whereas now only one is used. (See Exhibit B.)

In the packing and shipping room there were employed eight men. All property received at this office and shipped from it is handled in this room. To give an idea of the amount of work done I will state that there were over 16,000 distinct shipments made during the year.

In the machine-shop, with its adjunct, the blacksmith-shop, there have been employed five men. The usual amount of work has been done, in manufacturing and repairing meteorological instruments, &c. (For statement of work done see Exhibit C.)

The carpenter-shop furnishes all packing-boxes for shipment of supplies, and in this all wood-work and jobbing is done. One man is employed. (For statement of work done see Exhibit D.)

The library has received during the year 963 books, and now contains nearly 9,000 volumes, many of them forming the only complete set of their kind in this country, and their loss would be incalculable.

The condition of the appropriations for the fiscal year ending June 30, 1884, with the expenditures thereunder and balances unexpended at the end of the year, with probable demands on such balances as required by act of Congress approved May 1, 1829, is shown in statement herewith. (See Exhibit E.)

While the force has been increased only 11 per cent. the work has increased on an average of 30 per cent., and the great accuracy required in all work done by this division renders it essential that the most efficient and careful men be employed.

I have to say that the men now in the division, with but very few exceptions, reach the high standard of efficiency required, and the discharge of any and the employment of others in their stead except in the cases mentioned, of which a special report will be made, is not considered necessary.

As it may be of general interest I inclose a detailed statement showing the total amount appropriated for the service for the fiscal year ending June 30, 1884. (See Exhibit G.)

On April 8, 1884, the honorable Secretary of War was requested to submit to Congress an estimate for a fire-proof building for the Signal Office. (See Senate Ex. Doc. No. 152, Forty-eighth Congress, first session.) The reasons for this request were fully set forth in your letter of the above-mentioned date, and I would respectfully urge that the matter be again brought to the attention of Congress at its next session.

UNITED STATES MILITARY TELEGRAPH LINES.

By the relief of Second Lieut. W. A. Glassford, Signal Corps, United States Army, from charge of the Department Missouri Division United States military telegraph lines, November 30, 1883; of Second Lieut. L. E. Sebree, Signal Corps, United States Army, from charge of the Texas Division, December 31, 1883; and of Second Lieut. Frank Greene, Signal Corps, United States Army, from charge of the Washington and Idaho Division, May 31, 1884, the duty of accounting for line receipts and public property on these lines devolved upon the property and disbursing officer.

The stations on these lines are as follows:

DEPARTMENT MISSOURI DIVISION.

Carter, Wyo.
Cantonment, Ind. T.
Dodge City, Kans.
Durango, Col.
Florida, N. Mex.
Fort Cummings, N. Mex.
Fort Union, N. Mex.
Fort Lewis, Colo.
Fort Bridger, Wyo.
Fort Thornburg, Utah.
Fort Sill, Ind. T.
Fort Reno, Ind. T.
Fort Supply, Ind. T.
Fort Elliott, Tex.
Fort Craig, N. Mex.
Fort Stanton, N. Mex.
Henrietta, Texas.
Montrose, Colo.
San Marcial, N. Mex.
Uncompahgre, Colo.
Watrous, N. Mex.

TEXAS DIVISION.

Fort Stockton, Tex.
Fort Davis, Tex.
San Antonio, Tex.
Brownsville, Tex.
Rio Grande City, Tex.
Marfa, Tex.

WASHINGTON AND IDAHO DIVISION.

Ashland, Oreg.
Astoria, Oreg.
Crescent Bay, Wash.
Dayton, Wash.
Fort Bidwell, Cal.
Fort Canby, Wash.
Fort Cœur d'Alene, Idaho.
Fort Klamath, Oreg.
Fort Spokane, Wash.
Fort Lapwai, Idaho.
Lakeview Oreg.
Lewiston, Idaho.
Linkville, Oreg.
Neah Bay, Wash.
Port Angelo, Wash.
Pysht, Wash.
Spokane Falls, Wash.
Tatoosh Island, Wash.

A total of forty-five stations, or an increase of over 30 per cent. in the property accountability at this office. As the Washington and Idaho Division was but recently transferred, the full force of this increased work is not yet felt. It is hoped an adequate increase of force will be allowed the division.

The short lines in the Department of the Missouri, connecting Forts Union, Cummings, Lewis, and the cantonment on the Uncompahgre with the railroad, were fitted out with telephones and turned over to the post commanders, who were given discretionary powers as to the transaction of commercial business. No tolls for such business were to be charged, however, and no returns are made by the persons in charge of the terminal offices.

The duty of collecting line receipts, settling accounts for business transferred to connection lines, examining and correcting telegraph accounts and preparing these accounts for transmission to the Treasury Department, is one requiring much attention, and involving, as they do, a large monetary responsibility, is one in which too much care cannot be exercised.

The orders relating to the remittance of line receipts, in force upon these lines at the time of transfer, were continued, and such additional orders as became necessary were issued from time to time. Under General Order No. 57, series 1883, operators in charge are required to remit the receipts of their offices when the sum on hand reaches $20.

The receipts from these lines have been collected and covered into the Treasury, without the loss to the United States of a cent. This is a noteworthy feature, considering the extent of territory covered, the isolated position of stations and the poor facilities many of the operators have of transmitting money to this point.

While the amount of money collected on these lines is not as large as in former years, it is evident that an equal amount of care and labor is required to account for it.

It is especially urged that steps be taken toward providing for a means of remitting line receipts, whereby the risk of loss will be reduced to the minimum, and I would suggest that Congress be asked to allow the expense of transmitting line receipts to be paid therefrom. There have been no losses during the past year on account of failures in the mail service, but should a single registered package be lost the contents are irrecoverable. And, as most of the remittances contain money for other lines, the way to a settlement of their claim under the present law is not plain.

A change in the system of settling accounts for telegraph business transferred to connecting lines was made necessary, by the rulings of the auditing officers of the Treasury Department upon section 3477 Revised Statutes.

Twelve hundred and thirty-six telegraph reports have been received and examined since November last. It is noticed that men from Fort Myer, Va., are entirely ignorant of the system of keeping telegraph accounts. It is recommended that such system be included in the course of instruction at the above-named post.

The receipts from lines in Department of the Missouri from November, 1883, to June 30, 1884, were	$3,446 73
Department of Texas from December 1, 1883, to June 30, 1884	2,004 07
Washington and Idaho Division for June, 1884	507 92
A total of	5,958 72

Of which amount $3,427.38 must be deducted for other lines

The money value of free business done on these lines for the Executive Departments during the same period is $2,036.32.

I am, very respectfully, your obedient servant,

S. M. MILLS,
Captain Fifth Artillery, P. & D. Officer Signal Service, U. S. A.

EXHIBIT A.

Cost of Signal Service stations for the year ending June 30, 1884.

Station.	Amount.	Station.	Amount.
Albany, N. Y	$944 97	Burlington, Iowa	$591 55
Alpena, Mich	326 48	Block Island, R. I	282 76
Atlanta, Ga	291 46	Cairo, Ill	6 55
Atlantic City, N. J	423 96	Cape Henry, Va	95 18
Augusta, Ga	240 11	Cape May, N. J	446 08
Baltimore, Md	504 92	Cape Mendocino, Cal	590 13
Bangor, Me	417 62	Cedar Keys, Fla	230 73
Barnegat City, N. J	281 31	Charleston, S. C	177 27
Boise City, Idaho	485 73	Charlotte, N. C	230 02
Boston, Mass	960 80	Chattanooga, Tenn	328 10
Buffalo, N. Y	1,347 77	Cheyenne, Wyoming	401 25

Cost of Signal Service stations for the fiscal year ending June 30, 1884—Continued.

Station.	Amount.	Station.	Amount.
Chicago, Ill	$1,088 54	New River, N. C	$145 69
Chincoteague, Va	45 55	New York, N. Y	676 09
Cincinnati, Ohio	705 51	Norfolk, Va	602 18
Cleveland, Ohio	433 63	North Platte, Nebr	451 12
Columbus, Ohio	282 57	Ocean City, Md	66 27
Colorado Springs, Colo	992 54	Olympia, Wash	174 82
Davenport, Iowa	329 02	Omaha, Nebr	142 13
Delaware Breakwater, Del	561 76	Oswego, N. Y	267 22
Denver, Colo	296 78	Pensacola, Fla	477 63
Des Moines, Iowa	600 60	Philadelphia, Pa	939 86
Detroit, Mich	990 64	Pike's Peak, Colo	1,401 82
Dodge City, Kans	49 09	Pittsburg, Pa	733 31
Dubuque, Iowa	305 87	Point Judith, R. I	44 11
Duluth, Minn	402 83	Port Huron, Mich	173 15
Eastport, Me	320 29	Portland, Me	168 25
Erie, Pa	414 88	Portland, Oreg	276 05
El Paso, Tex	320 56	Provincetown, Mass	410 91
Escanaba, Mich	551 51	Palestine, Tex	67 64
Fort Macon, N. C	228 11	Red Bluff, Cal	188 07
Fort Smith, Ark	118 13	Rochester, N. Y	188 23
Galveston, Tex	162 22	Roseburg, Oreg	218 00
Grand Haven, Mich	312 82	Sacramento, Cal	279 83
Hatteras, N. C	102 49	Salt Lake City, Utah	392 73
Huron, Dak	332 29	Sandusky, Ohio	306 81
Indianapolis, Ind	280 53	Sandy Hook, N. J	77 89
Indianola, Tex	329 69	Sanford, Fla	312 33
Jacksonville, Fla	240 73	San Francisco, Cal	425 78
Keokuk, Iowa	319 47	Savannah, Ga	301 49
Key West, Fla	365 17	Shreveport, La	264 00
Kitty Hawk, N. C	28 32	Scott's Hill, N. C	204 38
Knoxville, Tenn	123 31	San Diego, Cal	371 18
La Crosse, Wis	243 71	Smithville, N. C	115 85
Leavenworth, Kans	722 07	Springfield, Ill	70 91
Little Egg Harbor, N. J	12 00	Saint Louis, Mo	1,715 39
Logansport, Ind	376 36	Saint Paul, Minn	369 11
Los Angeles, Cal	341 24	Saint Vincent, Minn	428 11
Louisville, Ky	282 08	Sitka, Alaska	589 15
Lynchburg, Va	258 44	Thatcher's Island, Mass	177 60
Little Rock, Ark	474 87	Toledo, Ohio	178 55
Mackinaw City, Michigan	282 16	Vicksburg, Miss	340 20
Marquette, Mich	282 60	West Las Animas, Colo	284 35
Memphis, Tenn	552 44	Wilmington, N. C	361 81
Milwaukee, Wis	624 64	Wash Woods, N. C	63 41
Mobile, Ala	297 25	Yankton, Dak	359 23
Montgomery, Ala	307 80	Yuma, Ariz	125 40
Moorhead, Minn	430 42	Unalashka Island, Alaska	299 32
Mount Washington, N. H	1,715 78		
Narragansett Pier, R. I	364 15		46,727 15
Nashville, Tenn	389 09	Coast telegraph	1,857 50
New London, Conn	287 88		
New Haven, Conn	351 77	Grand total	48,584 65
New Orleans, La	118 85		

This statement does not include any expenses for Washington, D. C.

Cost of Sea-Coast Telegraph Line for fiscal year ending June 30, 1884.

Station.	Amount.	Station.	Amount.
Atlantic City, N. J	$311 38	Narrangansett Pier, R. I	$2 18
Barnegat, N. J	40 15	Norfolk, Va	119 51
Block Island, R. I	32 73	Ocean City, Md	61 64
Cape Lookout, Va	4 00	Portsmouth, N. C	20 18
Cape Henry, Va	51 53	Point Judith, R. I	21 55
Cape May, N. J	61 91	Sloop Point, N. C	148 09
Chincoteague, Va	19 42	Sandy Hook, N. J	26 42
Delaware Breakwater, Del	87 09	Smithville, N. C	50 73
Fort Macon, N. C	87 82	Thatcher's Island, Mass	[illegible] 27
Hatteras, N. C	170 99	Wash Woods, N. C	2 18
Kitty Hawk, N. C	148 09	Wilmington, N. C	118 45
Little Egg Harbor, N. J	112 64	Miscellaneous	18 60
Manasquan, N J	19 86		
New River, N. C	118 09	Total	1,857 50

The following stations that were included in last year's statement of expenses were discontinued during latter part of fiscal year ending June 30, 1883, and fiscal year ending June 30, 1884:

Burlington, Vt.
Cape Lookout, N. C.
Champaign, Ill.
Denison, Tex.
Eagle Rock, Idaho.
Fort Washakie, Wyo.
Madison, Wis.
Morgantown, W. Va.
Manasquan, N. J.
Newport, R. I.
Pioche, Nev.
Punta Rasa, Fla.
Springfield, Mass.
Springfield, Mo.
Starkville, Miss.
Sante Fé, N. Mex.
Tucson, Ariz.
Umatilla, Oreg.
Visalia, Cal.
Winnemucca, Nev.
Williamsport, Pa.

EXHIBIT B.

Letters sent during year ending June 30, 1884.

Heads of Departments and Bureaus	2,095
Manufacturers and others	2,475
Enlisted men, relating to property and money	12,203
Enlisted men, authorizing purchases and expenditures	1,792
Miscellaneous	12,993
Total	31,558

Letters received during year ending June 30, 1884.

Heads of Departments and Bureaus	3,908
Manufacturers and others	1,563
Enlisted men, relating to property and money	19,326
Miscellaneous	7,712
Total	32,509

EXHIBIT C.

Abstract of articles made and repaired in machine-shop during fiscal year ending June 30, 1884.

Articles.	Number.	Articles.	Number.
MADE.		REPAIRED.	
Anemometers, special pattern	6	Anemometer cups, regular	41
Anemometers, cups, sets of special pattern	12	Anemometers, regular	86
Anemometers, cups, regular	65	Anemometers, self-registering	31
Arrows for weather maps, old style	5,000	Adders, Webb's	2
Arrows for weather maps, sets of new style	15	Barometer boxes, new style	25
Bulletin-board springs	415	Call boxes for telephones	80
Bed plate (brass) for printing weather maps	1	Clocks, regulator and marine	18
Contact and attachment for wind vane	4	Heliographs	2
Clock works for self-register	8	Heliograph screens	15
Dies, set of, for stamping weather maps	1	Horizon instrument	1
Hygrometer springs	110	Marine glasses	6
Heliograph screen, new pattern	1	Rain-gauges (copper)	12
Instrument shelters (galv. iron)	9	Telephones	115
Radiation thermometer supports	50	Telephone transmitters	40
Rain gauges (galv. iron)	18	Telegraph keys	94
Switches, telephone	8	Telegraph sounders	46
Telephones	45	Telegraph-box sounders	24
Telephones, transmitters	25	Telegraph relays	22
Telescope holders	12	Telegraph repeaters	6
Wind vanes, complete	8	Telegraph instruments, field	4
Weather cases, complete	10	Telescopes	4
		Telescope holders	4
		Thermometer-testing apparatus	2
		Thermometer cases for water thermometer	12
		Telescopic rods for anemometer	2
		Wind vane	1

In addition to the above there have been repairs to machinery in printing office, and general repairs in the buildings, such as plumbing, gas-fitting, locksmithing, &c.

EXHIBIT D.

Abstract of carpenter work during fiscal year ending June 30, 1884.

Articles.	Number.
MADE.	
Shelters	43
Boxes	896
Box tops	88
Box cleats	24
Crates	48
Wind vanes	4
Anemometer posts	2
Rain-gauge rules	247
Drawing boards	4
Map sticks	14
Stands	8
Doors	4
Label boards	40
Cutting sticks	12
Thermometer stands	4
Ladders	6
Chest	1
Blocks (printing office)	35
Pigeon holes	151
File boards	4
Cable boxes	3
Warning boards	30
Fire screen	1
Wrapping boards	3
Benches	3
Hygrometer boards	76
Bulletin boards	200
Stool	1
Thermometer racks	32
Circular mounting	1
Anemometer stands	2
Telegraph boards	58
Thermometer boxes	32
Telegraph covers	116
Water dash	1
Barrel cover	1
Rack for telegraph wires	1
Anemometer boxes	2
Tables	2
Wand sticks	100
Hand rail	1
Foot rests	2
Cautionary signal board	1
REPAIRED.	
Chairs	57
Stools	3
Doors	11
Desks	16
Rollers (printing office)	2
Blocks (printing office)	1
Cases	10
Fly sticks	5
REPAIRED—Continued.	
Ladder	1
Ice picks	2
Stands	15
Telegraph board	1
Drawer	1
Barometer boxes	94
Water cooler	1
Wind vane	1
Windows	6
Tables	11
Window shades	5
Fire screens	5
Bed	1
Pigeon holes	24
Wheelbarrow	1
Galleys (printing office)	3
Bulletin frames	51
Thermometer boxes	32
Anemometer boxes	5
Heliograph boxes	2
Crates	2
Blind	1
Sign boards	4
Stone racks	2
Sash cords	34
Switch boards	2
Press	1
MISCELLANEOUS.	
Trunks boxed	3
Chair boxed	1
Scrapers sharpened (printing office)	6
Clock hung	1
Coat racks put up	10
Signs put up	2
Hinges put on	2
Doors hung	6
Cases painted	7
Maps mounted	8
Locks put on	8
Warning boards varnished	6
Knobs put on	4
Bulletin boards painted	200
Door cut in partition	1
Bulletin boards varnished	110
Hygrometer boards oiled	100
Instrument shelter put up	1
Telegraph boards varnished	58
Shelters painted	35
Shelters crated	6
Blackboard painted	1
Flag pole put up	1

In addition to the above, there has been considerable work done, such as repairing roofs and floors, laying board walks in yard, taking down and putting up water closets, &c., and there has been one man employed on carpenter work at Fort Myer, Va., from April 15 to June 30, 1884.

EXHIBIT E.

Appropriations made for 1883-'84.

Observation and report of storms	$242,500 00
Expenses Signal Service, U. S. A	5,000 00
Maintenance, &c., military telegraph lines	35,000 00
Observation and exploration in Arctic seas	33,000 00

Expended to June 30, 1884.

Observation and report of storms	$165,377 68
Expenses Signal Service, U. S. A	1,754 23
Maintenance, &c., military telegraph lines	23,840 35
Observation and exploration in Arctic seas	32,340 20

On hand July 1, 1884.

Observation and report of storms	$77,122 32
Expenses Signal Service, U. S. A	3,245 77
Maintenance, &c., military telegraph lines	11,159 65
Observation and exploration in Arctic seas	659 80

Liabilities against above balances (estimated).

Observation and report of storms	$74,000 00
Expenses Signal Service, U. S. A	3,600 00
Maintenance, &c., military telegraph lines	11,159 65
Observation and exploration in Arctic seas	400 00

EXHIBIT F.

Names of enlisted men and of civilians ordered to and transferred, &c., from property division since June 30, 1883.

ORDERED TO DIVISION.

Enlisted men.	Enlisted men.	Civilians.	Civilians.
Duane, Louis.	Moran, Jno. A.	Crewa, E.	Finn, B. F.
Moran, James.	Detchmendy, G. A.	Cross, C. F.	Marston, Geo.
Henry, A. J.	Whiteside, J. L.	Penn, G.	Jackson, A. S.
Johnson, F. L.	Koonce, G. W.	Plummer, W.	Rawlings, G. W.
Spates, R. N.	Marye, W. B.	Pinn, W.	Hitchins, H.
Farrel, S. J.	Rennie, J. W.	Collier, L.	Branham, W. A.
Riviere, G. A.		Lee, W. J.	

TRANSFERRED, ETC., FROM DIVISION.

Green, Geo. P.	Morsell, J. W.	Rowe, G.	Hayes, R. W.
Perry, Geo. N.	Hass-Hagen, J. G.	DeKnight, C.	Turley, C. W.
Sawyer, C. J.	Lyons, D.	Dyer, W.	Rawlings, G. W.
Frear, J. A.	Wagg, A. M.	Harris, M.	Branham, W. A.
Harrison, R. H.		Jenifer, H.	

RECAPITULATION.

Enlisted men.	Number.	Civilians.	Number.
Ordered to division since June 30, 1883.	13	Ordered to division since June 30, 1883.	13
Transferred from division since June 30, 1883	9	Transferred from division since June 30, 1883	9
Gain since June 30, 1883	4	Gain since June 30, 1883	4

Comparative statement showing number of men employed in property and disbursing division, Signal Service, U. S. A., on July 1, 1883, *and on June* 30, 1884.

	Enlisted men.	Civilians.	Total.
Number of men in division July 1, 1883	36	30	66
Number of men in division June 30, 1884	40	34	74

EXHIBIT G.

Statement of amounts appropriated for the support of the Signal Service, U. S. Army, for the fiscal year ending June 30, 1884.

LEGISLATIVE, EXECUTIVE, AND JUDICIAL.

Regular clerks, messengers, &c	$10,660 00
Scientific experts, clerks, &c	40,000 00
Postage-stamps, Postal Union countries, allotted by the Secretary of War	1,200 00
Stationery allotted by the Secretary of War	3,400 00
Rent of buildings for Signal Office	7,000 00
Official postage allotted by Secretary of War	40,000 00
Fuel and light allotted by Secretary of War	1,107 24
Total	103,367 24

SUNDRY CIVIL EXPENSES.

Observation and report of storms:	
Manufacture, purchase, and repair of instruments	$5,500 00
Telegraphing reports	136,000 00
Expenses storm signals	10,000 00
Cotton-belt reports	7,000 00
Connection life saving stations	5,500 00
Instrument shelters	500 00
Rents, &c., of offices outside of Washington	40,000 00
Office furniture in Washington	1,000 00
River and flood reports	5,000 00
Maps and bulletins	25,000 00
Books, periodicals, and stationery	6,000 00
Incidental expenses	1,000 00
Total	242,500 00

Maintenance and repair of military telegraph lines	35,000 00
Observation and exploration in the Arctic seas	33,000 00

Pay, &c., of the Signal Corps:	
Pay of officers	$19,500 00
Pay of enlisted men	200,000 00
Mileage to officers	5,000 00
Pay of contract surgeons	3,600 00
Commutation of quarters to officers	7,000 00
Total	235,100 00

Subsistence Department:	
Stores, Lady Franklin Bay	$5,000 00
Stores, Point Barrow	3,000 00
Subsistence and commutation rations, Signal Corps	148,727 72
Commutation of rations, men with expeditions	8,052 00
Total	164,779 72

Quartermaster's Department—Regular supplies:	
Fuel	$6,295 00
Commutation of fuel, at $9 per month	23,760 00
Commutation of fuel, at $8 per month	23,328 00
Forage for mules and horses	3,100 00
Stationery	100 00
Stoves	706 25
Lights	362 50
Total	57,651 75

Quartermaster's Department—Incidental expenses:	
Horse and mule shoes	$500 00
Blacksmiths' tools	550 00
Veterinary supplies	300 00
Fire-apparatus, disinfectants, &c	125 00
Total	1,475 00
Quartermaster's Department—Transportation:	
Supplies, &c	$25,000 00
Officers and men	8,875 00
Means of, mules	700 00
Means of, spring-wagon	200 00
Means of, repairs to	500 00
Total	35,275 00
Quartermaster's Department—Barracks and quarters:	
Commutation of quarters	$84,108 00
Work and supplies at Fort Myer	1,800 00
Total	85,908 00
Quartermaster's Department—Clothing, camp, and garrison equipage:	
For sergeants	$6,937 50
For corporals	1,375 20
For privates	14,182 40
For detailed men	990 00
Total	23,485 10
Medical Department:	
Medical attendance and medicines, officers and men, Signal Corps.	$3,500 00
Medical attendance and medicines, officers with Signal Corps	100 00
Medical and hospital supplies, Fort Myer	900 00
Medicines from depots, &c	1,000 00
Material, repairs to hospital, Fort Myer	200 00
Total	5,700 00
Support of the Army:	
Expenses Signal Service, U. S. Army	$5,000 00
Grand total	$1,028,241 81

APPENDIX 4.

REPORT OF THE ASSISTANT IN CHARGE OF THE STUDY ROOM.

STUDY ROOM, OFFICE OF THE CHIEF SIGNAL OFFICER,
August 7, 1884.

TO THE CHIEF SIGNAL OFFICER:

SIR: I have the honor to report that during the past year the *personnel* of the study-room has experienced important changes, as follows:

On January 10, 1884, Prof. Winslow Upton resigned his position in order to accept a position at Brown University, Providence, R. I. I anticipate that he will there be able to accomplish much for the advance of meteorology.

On January 14, Sergeant (now Lieutenant) Finley, then in charge of the collection and study of tornado data, reported to the study-room for duty, and has continued his work in this line. The other additions have been as follows: January 21, Privates G. W. Knopf and O. L. Fassig; March 7, Mr. C. J. Sawyer, bibliographer; April 8, Corporal Daniels; May 26, Private Hilton; June 10, Sergeant R. Peters, for one-half of each day; June 11, Sergeant Marbury; June 21, Private Dilley; June 24, Private J. Hall.

On February 27, Private King reported, but was transferred on March 28 to station duty; March 10, Sergeant Schaeffer reported, but was transferred, April 8 to the marine division.

There has therefore been a net increase of three men, and there are now eight, as compared with five at the beginning of the year. With this has come a more than corresponding increase in the amount of work done.

The details of the work that has passed through the study-room is about as follows:

CONSULTING SPECIALISTS.

During the year the following well-known experts have been consulted with reference to special matters:

On atmospheric electricity, Prof. H. A. Rowland, of Baltimore, and Prof. John Trowbridge, of Cambridge, Mass.

On atmospheric spectroscopy, Prof. C. S. Hastings, of Baltimore, Prof. S. C. Pickering, of Cambridge, Prof. W. Upton, of Providence, R. I., and Prof. C. S. Cook, of Hanover, N. H.

On barometry, Prof. A. W. Wright, of New Haven.

On chemical analysis of the air, Prof. E. W. Morley; earth temperatures, Prof. T. C. Mendenhall and Prof. Trowbridge.

On bibliography, numerous meteorologists, among whom may be mentioned Dr. Julius Hann, Dr. Geo. Hellman, Dr. A. Lancaster, Dr. F. B. Hough, Prof. Elias Loomis, from each of whom valuable assistance has been received. It is specially gratifying to be able to add that the latter has consented to compile a summary of the results embodied in his twenty memoirs entitled "Contributions to Meteorology," with much additional matter, for publication as a professional paper. These laborious studies of Signal Service tri-daily weather-maps cannot but prove of value to the service.

STANDARDS.

(*a*) *Thermometers and exposures.*—The work done on this subject has consisted in the extensive investigations made by Professor Hazen into the proper exposure of thermometers. His observations are still in progress. The office has already profited by his preliminary results.

It is considered desirable that temperatures in mid-air should be obtained by means of small captive balloons, and that the sling thermometer as corrected by Professor Ferrel's new formulæ be recognized as our ultimate standard for temperature of dry and wet bulbs.

(*b*) *Barometers.*—The principal work under this head has been the continuation of the comparative observations made by Professor Waldo into the relation between the Signal Service and foreign standards. Six new portable Fuess barometers have been compared with others both abroad and in this country, but completion of the work has been delayed by Professor Waldo's sickness.

The extensive experiments made by Prof. A. W. Wright looking to the construction of a normal barometer have been brought to a satisfactory conclusion, and it is desirable that this office obtain a duplicate of his apparatus.

According to Hagemann's and other experiments, barometers may be sensibly affected by their exposure in rooms subject to strong chimney and window draughts. I have devised an anemo-barometer to test this question, and recommend that a trial of it be made.

(*c*) *Hygrometers.*—The contemplated investigation of hygrometric apparatus, and especially of Regnault's formula, has been delayed by the resignation of Professor Upton.

The special observations made at Pike's Peak, Colorado Springs, and Yuma have been discontinued, and the results will be deduced as soon as a competent person is available. The use of some form of ventilating apparatus for the wet bulb was recommended by me in a report dated October 18, 1883; probably the sling thermometer should be now recognized as the least objectionable method of obtaining such ventilation.

(*d*) *Anemometers.*—The sample anemometers sent last year to the Deutsche Seewarte for the purpose of comparison with European standards have, it is understood, already been compared, but no report of results has yet been received. It is very important that this office should possess the apparatus known as "a whirling table," or its equivalent, and the proper room for its use, in order that all of our instruments may be tested up to velocities of at least 40 miles an hour. For the higher velocities and for all forms of pressure apparatus there are still needed elaborate theoretical and experimental investigations. The high velocities (maximum 186 miles hourly) habitually reported by our instruments at Mount Washington, Cape Hatteras, &c., impose upon us the responsibility of thoroughly establishing the reliability of these figures. To do this it will be necessary to make a considerable outlay of time and money, and I recommend that steps be taken to secure the necessary authority. The neighborhood of Cape Hatteras offers an excellent location for beginning this work. In order to test the exposures on Mount Washington, I have recommended that two anemometers be placed on the signal tower, for which purpose the owner of the tower has kindly offered every facility.

(*e*) *Rain-gauge and exposure.*—I have during the past year recommended that the 8 inch gauge so long used by this service be considered as our standard, so far at least as the diameter of the mouth is concerned, and that each station be supplied with two such gauges; any others that have been supplied should be considered as experimental.

In order to study the effect of exposure in its narrowest sense comparative observations of two gauges were ordered to be made at fifty stations; the results thus far deduced from the study of these records show a disagreement in extreme cases of 50 per cent., but it is not yet ascertained how much of this is due to location and how much to the form of the gauge.

The special series of observations on Mount Washington, intended as a contribution to the question of distribution of rainfall on mountain sides, has thus far shown that within distances of only a few hundred feet on the summit there are systematic differences in the amount of rainfall due to the direction and velocity of the wind. The discrepancies between the readings of the different gauges observed increase with the velocity of the wind, the leeward gauges containing the greater rainfall.

Steps have been taken to establish at an early day a new series of rain-gauges on the east and west sides of the mountain at altitudes differing about 500 feet.

By these means the rainfall at the summit will be connected with the records of surrounding base stations, and the law of variation of rainfall with elevation may be obtained.

(*f*) *Standard time.*—The standard clock made for this office by the American Watch Company at Waltham, after running for one year on trial, has been allowed to stop, and preparations are being made to send it to Waltham for slight improvements, which will be made by the maker without charge to this office.

The necessity of having time-scales mutually agreeing to within a second has been recently again enforced by Professors Rowland and Trowbridge in order that they may successfully elucidate the sudden changes recorded in electric registers; some of these changes are possibly records of earthquake shocks and tremors, and the successful establishment of such records at many Signal Service stations will undoubtedly facilitate the study and eventually the prediction of earthquakes—if we may judge from the great advances made in seismology during the last fifteen years.

The steps taken by the United States Government toward securing an international convention on the question of a prime meridian and standard time have resulted in fixing October 1 as the date on which the convention is to be held, and with your permission I have accepted a position as delegate. Although the legalization and general adoption of the system of hourly meridians from Greenwich has already taken place in the United States, yet it has not been proper for this office to relinquish the use of Washington local time until all co-operating national systems of meteorology could agree thereto; all the replies to a circular upon this subject have shown perfect unanimity, and it is therefore expected that, beginning with January 1, 1885, our observations will be taken simultaneously throughout the world on the even hours of an international time system.

TABLES FOR REDUCTIONS AND CONVERSIONS.

The tables for derivation of dew-point and humidity, based on Regnault's formula for the psychrometer, have been extended and continued in use, but new tables will be prepared as soon as the formula has been modified so as to agree with recent data, especially the observations at Pike's Peak and Yuma. A table for relative humidity at ordinary pressures has been completed for use, especially at sea.

The tables of monthly constants for reduction of the barometer to sea-level continue in use, without important change (see paper A). The only considerable contribution to our knowledge of this subject that has been published during the year consists in the memoir recently read by Professor Loomis before the National Academy of Sciences. It is by all acknowledged to be very desirable that some more satisfactory method of reduction should be devised, and especially that there should be uniformity in this matter among all the meteorological offices of the world.

An elaborate table of longitudes and times has been prepared and published in order to facilitate the securing of simultaneity of meteorological observations at all Signal Service and international stations.

CONFORMITY TO THE RESOLUTIONS OF THE INTERNATIONAL METEOROLOGICAL CONGRESS.

The International Congress at Vienna in 1873, and that subsequently held at Rome in 1878, having, through their permanent meteorological committee, framed a system of rules and forms, and having voted unanimously that the progress of meteorology required as close conformity to these as any way possible, I have, by your order and with the assistance of Professor Upton, submitted a report recommending such changes in Signal Service methods as seemed desirable and practicable.

These changes, having been approved by you, have already partially gone into effect, but other important points need further consideration. Among these is the matter of continuous self-registers, as touched upon in the following paragraph:

STATIONS OF THE FIRST ORDER.

In order to combine together records made from three to six times a day, and in order to study minutely the changes going on in the atmosphere, a few stations are necessary at which continuous, or at least hourly, records are maintained. The absence of such stations in this country has been greatly deplored by meteorologists, and I earnestly recommend that one such be established at once at Fort Myer and be furnished with conveniences for special investigations into such matters as cannot be easily studied in this city, as, for example, anemometry, electricity, and cloud photography.

RELIABILITY OF STATION BAROMETERS.

Until May 10, 1884, it was the duty of this room to compare the extracts from the reports of inspecting officers and other forms and data relating to the correctness of station barometers, and to suggest the proper action wherever any deterioration was detected.

This work was confided to Professor Hazen, and his report on its condition up to June 30, when turned over to the Meteorological Observatory by him, gives all necessary details.

As much trouble has been caused by the deterioration of barometers incident upon the removal of instruments from one building to another, special instructions for such removals and a form for comparative readings have been prepared by the study-room, and upon recommendation adopted.

LOCATIONS OF STATIONS.

(*a*) *Latitude and longitude.*—In order to secure greater accuracy in the locations of stations it has been recommended that each report its distance in miles north or south and east or west of some prominent public building or geodetic point of reference whose location is accurately known. It thus becomes possible to distinguish between the stations of various observers when several are located in the same city or when an office has been frequently moved.

(*b*) *Altitudes.*—When possible the altitudes of all our stations depend upon railroad, canal, or geodetic leveling; more accurate data is continually being received, and the present condition of our knowledge is shown in paper B, which is extracted from a report of Professor Hazen, who has had charge of the altitudes of instruments, river-gauge zeros, reference planes, &c.

ATMOSPHERIC ELECTRICITY.

The system of study and observation inaugurated in August, 1882, under the general direction of Professors Rowland and Trowbridge, has continued and satisfactory progress is reported.

By your direction I visited these stations in the last week of June, and my report thereon shows the following results.

(*a*) *Baltimore electric station.*—Professor Rowland has set apart a room in the physical laboratory of the Johns Hopkins University and offered all possible photographic facilities for establishing and maintaining the Mascart self-registering apparatus.

After overcoming many difficulties this has now for several months been made to keep a satisfactory record, and Private Morrell has presented a memoir of preliminary results, which, on the recommendation of Professor Rowland, has been accepted and ordered to be published.

(*b*) *Cambridge electric station.*—Professor Trowbridge has instructed Privates McAdie and McRae and has, out of apparatus loaned by Harvard University, arranged for continuous photographic registration of electrical conditions and ground currents. A room in the Lawrence Scientific School has been assigned for the use of these observers, but much more desirable room will be given them in the new "Thayer" physical laboratory. Private McAdie has prepared a memoir on some results of the first year's work, which it is expected will soon be submitted to you by Professor Trowbridge.

As both of these stations have now begun continuous observations, it is desirable that they should be recognized as distinct electrical stations.

It is probable that eventually similar stations will be advisable at other scientific schools where the physical laboratories and the electrical experts are at hand.

In all cases the men and apparatus at such stations should, if possible, be under the control of electricians whom we recognize as *consulting specialists*.

(*c*) *International Congress of Electricians.*—At the request of the International Congress of Electricians this office has undertaken to stimulate a general interest in this subject and to secure the co-operation of professional electricians, telegraph, telephone, and electric-light companies. Encouraging responses have been received from all these, and a general convention on the subject will probably be held at an early date. It is believed that especially through the telephone companies it will become possible to predict and rapidly notify any community of approaching thunder-storms. In fact, by means of this co-operation it may become possible to make daily a somewhat minute survey of the electric condition at the earth's surface parallel in every respect to the magnetic survey that has already been achieved by international effort

The observations of ground currents, made with rather rough apparatus by Lieut. Ray at Ooglaamie, have been turned over to Professor Trowbridge, who will supervise their reduction by Private McRae.

RAIN BAND SPECTROSCOPY.

About the beginning of the present fiscal year a series of spectroscopic observations was begun as referred to in my last Annual Report. These have now been continued for over a year at five stations, but, owing to the resignation of Professor Upton and the delay in appointing a successor, no definite study of these observations has been made. It is, however, probable that owing to the roughness of this method of observation (recommended originally by foreign meteorologists) it will, as was partly anticipated, not give results sufficiently valuable to warrant its general introduction into the Signal Service. On the other hand, an improved apparatus and method devised by Professor C. S. Cook, of Hanover, N. H., seems worthy of trial, and I have recommended that sufficient apparatus to furnish three stations be purchased.

EARTH TEMPERATURES.

The temperature of the earth at depths greater than 3 feet has generally been recognized as an important contribution to our knowledge of climate and its secular changes; but temperatures at depths of from 4 inches to 3 feet form a still more valuable contribution to the study of agriculture and forestry, while the temperatures at the immediate surface are an index of any rapid changes in solar and terrestrial radiation. Observations of the temperature have therefore been requested by Professor Langley as a check upon the results of his observations on Mt. Whitney.

Earth temperatures at ordinary depths have been suggested as desirable by Professor Mendenhall, of Columbus, Ohio, in connection with the progress of agriculture, and also by Professor Trowbridge, of Cambridge, in connection with ground currents and atmospheric electricity proper.

I consider it desirable that ground currents and earth temperature should be recorded at both these stations continuously as preliminary to more extensive work in this line.

SOLAR RADIATION.

The Arago-Davy actinometers purchased of an English maker, for the observation of solar-radiation at twenty stations, having been carefully compared, have been reported upon adversely, on the ground that the ordinary thermometers in vacuo are decidedly preferable to the maximums used by English observers. The maker having stated on what conditions he will make the necessary changes, I have recommended the substitution of ordinary for maximums.

In order that we may have actinometric standards conformable to the conditions demanded by Professor Ferrel's researches, I have with him drawn up the necessary specifications, and standard instruments have been ordered of Professor Marié Davy, director of the Mont Souris Observatory. It is evident that through the recent studes of Professor Ferrel a decided advance has been made in our knowledge of this instrument.

MOUNT WHITNEY MILITARY RESERVATION.

This reservation was officially declared on October, 1883, but no special observations have been made there during the past year. The great advantages offered by this location make it probable that in another year it will be desirable to occupy this station for the determination of various questions in hygrometry, solar and terrestrial radiation.

TORNADO STUDIES.

The collection and study of data relative to tornadoes, was, in January, 1884, added to the duties of the study room, and Sergeant Finley (who has devoted himself to this branch of the service since 1878) was transferred to take charge of this subdivision. A full report of his connection with the work is submitted herewith (see paper C), from which it will be seen that up to June 30 he has secured 957 special tornado reporters, and has issued the necessary instructions. He has also published a series of tornado charts illustrating the special features of the groups of tornadoes that occurred on February 19, March 11, 25, April 1, 14, 27, 28, May 5, 18, 21, June 7, 8, July 4, 5, all of 1884. These have been widely recognized as throwing much light upon a subject in general but little understood. Records have been collected relative to several hundred tornadoes additional to the 600 tabulated in Professional Paper No. VII. In order to test the practical value of the knowledge thus obtained, daily tornado predictions were by your orders undertaken, and have continued uninterruptedly from March 10 to the present date. The country was divided into eighteen tornado districts, each averaging about 200 miles square, and for each of these predictions have been made, at first twice daily at 10 a. m. and 6 p. m. eight hours in advance, but now once daily at 10 a. m. for sixteen hours in advance, stating whether or not tornadoes are likely to occur.

These tornado predictions are, therefore, in many respects comparable with the predictions of high winds, made by hoisting cautionary signals. The absence of a signal means no high winds expected, and the sense of security enjoyed by the maritime community when no cautionary signal is displayed has for years been recognized as being of great value to the community.

It is anticipated that precisely similar advantages must result to the inland communities if we adopt a parallel system of signals or warnings as soon as the accuracy of these predictions equals that of the cautionary signals. Thus far the predictions have been considered as purely a matter of preliminary study and practice.

INDEX TO METEOROLOGY.

In order to avail ourselves of the numerous published investigations by meteorological students, attention has continued to be given to the formation of an index catalogue of meteorological literature; in March, 1884, this work was confided to Mr. C. J. Sawyer as bibliographer.

The catalogue of meteorological literature compiled for this office by Mr. G. J. Symons, of London, with the assistance of Professors André Poey and M. Leon Teisserenc de Bort, of Paris, has been received, and is being combined with the meteorological titles from the Royal Society catalogue of scientific papers and other sources.

Through the courtesy of Dr. Gustav Hellmann, of Berlin, this collection will be enriched by the incorporation of the titles in his recently published "Repertorium der Deutschen Meteorologie," while many other very valuable additions have been obtained through the co-operation of meteorologists in this country and abroad. The number of titles (40,000) fully warrants the expectation of an approximately complete bibliography of meteorology, and the hearty co-operation of many meteorologists shows their high appreciation of the importance of the work.

INTERNATIONAL POLAR STATIONS.

The international agreement by virtue of which every civilized nation has contributed its share towards meteorological and magnetic observations in Arctic and Ant-Arctic regions has during the past year been brought to completion.

The observations at Point Barrow and Lady Franklin Bay, in charge of Lieutenants Ray and Greely, respectively, were discontinued in August, 1883; the former party returned to Washington in October. In the preparation of this work for publication the study room has merely an advisory responsibility, and has been freely consulted. The meteorological observations made by the L. F. B. Relief Party of 1883 were prepared for publication under my supervision, and ordered printed as Signal Service Note No. XIV.

The observations made by Private Palmaerts on the L. F. B. Relief expedition of 1882 have been received; but as these were made with unverified instruments it appears unnecessary to publish them in full.

In response to an invitation from the International Polar Commission relative to the possibility of continuing these Polar stations for several years longer, it has been advised that we await first the publication and discussion of the observations that have accumulated during 1881–'82–'83.

THUNDER-STORM STUDIES.

Notwithstanding the importance of making a special study of thunder-storms, and although it had several times been urged upon your predecessor, it had not been recognized by this office as a special branch of its work until the spring of 1884, when at his own request Professor Hazen was by you authorized to begin the collection and study of thunder-storms data.

The details of this work are given in a short extract from his report (see Paper D), from which it will be seen that through the co-operation of the Postmaster-General several thousand voluntary observers have been secured, and the system of prompt report by postal card is in successful operation.

SCIENTIFIC PUBLICATIONS.

A number of publications have emanated from the study room during the past year, and have been published either with your permission in scientific journals or by your order as Signal Service papers. The following is a list of such publications:

No.	Title and reference.	Author.
1	On a method of filling barometer tubes. American Journal of Science, January, 1884.	F. Waldo.
2	Reply to Heath's criticism of Ferrel. L. E. & D. Philosophical Magazine, 1883	F. Waldo.
3	Study of meteorology in the Higher Schools of Germany, Switzerland, and Austria. Signal Service Notes, No. VIII. (A translation of this Signal Service Note has been published in the "Meteorologische Zeitschrift," March–April, 1884.)	F. Waldo.
4	The Russian Meteorological Service. Science, February, 1, 1884	F. Waldo.
5	How to save life from tornadoes. Burlington (Iowa) Chronicle, May, 1884	J. P. Finley.
6	Tornado predictions. American Meteorological Journal, July, 1884	J. P. Finley.
7	Progress in tornado investigation. Science, Cambridge, June 20, 1884	J. P. Finley.
8	The character of 600 tornadoes. A revised edition of Professional Paper No. VII.	J. P. Finley.
9	Charts of relative storm frequency for a portion of the northern hemisphere. Professional Paper No. XIV.	J. P. Finley.
10	The special characteristics of tornadoes with practical directions for the protection of life and property. Signal Service Notes, No. XII.	J. P. Finley.
11	Signal Service tornado circulars 1-24. (These are confined mostly to instructions and forms for tornado observers, and preliminary charts of tornadoes.)	J. P. Finley.
12	The effect of wind currents on rainfall. Signal Service Notes, No. XVI	G. E. Curtis.
13	The relation between northers and magnetic disturbances at Havana, Cuba. Signal Service Notes, No. XIII.	G. E. Curtis.
14	The red skies. Science, January 11, 1884	W. Upton.
15	Numerous contributions on the progress of meteorology. Reviews of meteorological publications, &c.	W. Upton.
16	Notes on meteorological progress in 1882 and 1883. Smithsonian Report for 1883.	C. Abbe.
17	The prediction of the weather. (Chapter IV of "How to use weather maps.") Signal Service Circular.	C. Abbe.
18	Bibliography of meteorology for 1883. Smithsonian Report, 1883	C. J. Sawyer.
19	Thermometer exposure. American Journal of Science, May, 1884	H. A. Hazen.
20	The dry and wet bulb thermometer fronde. American Meteorological Journal, June, 1884.	H. A. Hazen.
21	The motion of waves of cold in the United States. Science, February 8, 1884	H. A. Hazen.
22	The origin of a tornado. Washington Daily Post, March 30, 1884	H. A. Hazen.
23	The sun-glows. American Journal of Science, March, 1884	H. A. Hazen.

INSTRUCTION IN METEOROLOGY.

The study room has continued to be as heretofore somewhat occupied in the matter of instruction in meteorology. Not only has nearly the whole time of Professor Waldo been given to the school at Fort Myer during the past five or six months, but in several ways efforts have been made to stimulate greater attention to this subject.

(*a*) *Lectures at Fort Myer.*—Courses of ten lectures were given in the fall of 1883 to the class then under instruction at Fort Myer by myself and Professors Upton and Hazen, and shorter courses by Professors Waldo and Russell. These courses covered substantially the same ground as those detailed in my previous reports, except some changes in the course by Professor Upton, for the details of which see the accompanying inclosure (Paper E.)

(*b*) *Instruction of officers.*—In December, 1883, two officers, Lieutenants Woodruff and Glassford, were ordered to pursue under me the course of instruction prescribed as preliminary to duty for indication officers. This course was somewhat modified with your permission, and was completed on the 28th of June.

(*c*) *General system of instruction for the service.*—The experience had in instruction was embodied in a report from me dated May 1, recommending a general system of instruction, examination, and promotion for the whole service.

This elaborate report is adapted to the present condition of neglect of meteorology in schools and colleges. No such extensive instruction would be necessary if we could directly secure a sufficient number of educated meteorologists as observers, officers, and experts.

(*d*) *Course of instruction for colleges.*—It is very desirable that the colleges should pay more attention to meteorology, and something has been done to stimulate activity in this matter, as follows:

(1) A course of study was suggested by me for use at Brown University. (See Paper F.)

(2) Professor Waldo's report on the study of meteorology in Germany has been widely circulated in this country as Signal Service Note No. VIII.

(3) A short course of lectures was given to the Washington Normal School, and with your permission, others have been promised to Johns Hopkins University and Columbian University.

(*e*) *Text books.*—An explanation of the sources of error and of the ordinary formulæ for correcting meteorological instruments, such as the barometer, thermometer, anemometer, &c., having been needed in the instruction of men and officers, I have by your order undertaken to make such compilation which will be mainly an enlargement of my course of lectures at Fort Myer. Such information is easily obtained in French and German, but is not available in English.

The "Popular Essays" by Professor Ferrel, whose publication was anticipated in my last annual report have appeared as Professional Paper No. XII, and have been used to great advantage in the course of instruction for the indications room, which course needs revision annually in order to keep up with the progress of the science.

(*f*) *Special course of instruction under experts.*—The necessity of securing proper instruction for the able enlisted men who are selected for special observations in difficult departments in meteorology has, as before explained, led to the instruction of Privates Morrell, McAdie, and McRae in atmospheric electricity; an equally valuable but to us novel and difficult class of observations relates to the absorption of sunlight, the polarization of the light of the sky, the spectroscopic analysis of the colors of the sky and clouds; as these observations will probably give us important knowledge of the moisture and other atmospheric conditions I have recommended that Sergeant O. B. Cole, of the Boston station in addition to his other duties report to Prof. E. C. Pickering, of Cambridge, for instruction and practice in this work.

General notes and correspondence.—With your permission the members of the study room have continued, but only to a very limited extent, to publish in scientific and popular journals brief abstracts or notices of new books, inventions, discoveries, &c.; thus utilizing for the benefit of the general public the extensive reading that is necessarily kept up at this office.

In the course of the scientific correspondence of the office there has been frequent occasion to prepare letters embodying information which cannot but contribute to the instruction of the community.

In these replies the following subjects among others have been treated of:

Solar and terrestrial radiation.
The variations of temperature and rainfall on mountain sides.
Periodicity of rainy and dry seasons.
The influence of the moon and planets on the weather.
Frost phenomena on sandy ground.
Cloud studies.
Notes on the history of Meteorology in the United States.
The red sunsets of 1883, 1884.

MISCELLANEOUS.

(*a*) *Civil Service examination.*—On account of the necessity of filling the vacancy caused by the resignation of Professor Upton much time has been consumed in the effort to select a successor in accordance with the rules of the Civil Service Commission. By special act of the President and Secretary of War the competition was opened to the enlisted men of the corps.

In order to indicate the standard which was sought to be established by the examination, I append two lists of questions, the first (Paper G) that which was adopted for a non-competitive examination, and the second (Paper H) that adopted for a final competitive examination. From this latter paper it will be seen that it was the intention of the special board of examiners to determine by the first portion of the examination a list of such candidates as possessed sufficient knowledge to make them eligible, and by means of the second portion of the examination to select the one whose experience and ability in original study made him the most desirable.

It would seem desirable that in case of any future similar examination this second part be made more prominent.

(*b*) *Distribution of publications.*—The question of the proper edition and distribution of the meteorological publications of this office has frequently been referred to the study room, and considerable labor has been given to the formation of a list of regular recipients as distinguished from the miscellaneous and occasional requests.

(*c*) *The sunset phenomena of* 1883.—The remarkable red sunset skies of the autumn and winter of 1883 gave occasion to several brief studies, the results of which were embodied in short papers by Professors Upton and Hazen, as previously enumerated in the section on publications. The lack of systematic and satisfactory methods of observations of sky colors, and absorption of sunlight, polarization, &c., was sadly felt when this beautiful phenomenon surprised not only us but meteorologists throughout the world, and several have expressed the hope that another such experience will find us prepared with instruments and experienced observers.

The extensive areas of smoky haze from forest fires offer us in this country annual opportunities of investigating analogous optical phenomena. I have, therefore, after correspondence and consultation with Professor Pickering of Harvard College Observatory recommended that a competent sergeant be ordered to report to him for instruction in the proper optical observations. As every indication pointed toward the eruption of Krakatoa as the origin of this special phenomenon, some attention has been given to the collection of volcanic dust, two specimens of which have been submitted, one collected near Krakatoa and presented by Professor Upton, the second gathered by Sergeant Applegate at Unalashka, and emanating from a volcano in its neighborhood. As an intimate connection between the matter erupted from all the volcanoes in the Pacific Basin had been plausibly made out, both of the above samples were submitted to Mr. J. S. Diller, assistant to the director of the United States Geological Survey, and his report thereon has been published in "Nature." It is recommended that observers at favorable stations be ordered to secure every vestige of atmospheric dust that may be brought down by rain or snow. This can easily be accomplished by furnishing rain-gauges of the pattern adopted by Mr. Fitzgerald, of the Chestnut Hill Water Works, Boston, Mass.

(*d*) *Self-recording apparatus.*—As very many important questions can only be answered by reference to reliable self-registers on which the minutest changes are recorded, it is considered very desirable that at least half a dozen stations should be supplied with the best forms of self-registers for pressure, temperature, wind force (not velocity only, but also pressure in pounds per square foot), wind direction, rainfall, sunshine. In these registers special care should be taken that the time scales be large enough to show fractions of minutes, or capable of such enlargement subsequently, and be mutually consistent to within a second.

(*e*) *Translations.*—In order to disseminate in this country knowledge on subjects that may have special interest, a little time has been occasionally devoted to the preparation of translations of interesting foreign papers on meteorology. Two such translations have been prepared during the year; namely, Pernter "On the formula for the Psychrometer," and Woeikoff "On the climatic conditions of past and present glacial phenomena."

(*f.*) *Scientific and military ballooning.*—As the use of the balloon for military purposes has received much attention and is highly appreciated in Europe, it is probable that this also may at some time become a duty of the Signal Office.

It is, therefore, proper to call your attention to the fact that several important problems in meteorology can be studied only with the help of balloons and ascensions, and it is desirable that the Signal Service should not neglect this method of investigation. All ascensions hitherto made in this country have been business ventures, in which all scientific interests have been subservient to financial considerations.

I recommend that arrangements be made with Prof. S. A. King, of Philadelphia, looking to one or more ascensions in which the object shall be to attain the greatest possible height near the center of an area of high barometer and again near the center of an area of low barometer; also at night time during an aurora and again at midday during a season of frequent thunder-storms.

The special observations to be made on these occasions will of course vary with the time and nature of the ascension. We frequently find ourselves unable, from the weather maps, to find what has become of the mass of air that blows from both sides towards a long barometric trough. It would seem that this question can best be studied by means of very small balloons from 1 to 3 feet in diameter, each bearing a numbered tag. By setting free many such balloons at a number of stations, by observing their courses and subsequent landing places, it is believed that a considerable addition to our knowledge will be made. Similar small but captive balloons have been successfully used for obtaining maximum and minimum temperatures at moderate heights in the atmosphere.

The ascensions that are generally made on the 4th of July at numerous places in this country were studied by me in 1871–'72–'73, in connection with the daily weather maps of those dates, and helped to elucidate the atmospheric conditions on those days, and I renew my recommendation first made at that time as to the systematic use of small free balloons.

(*g*) ***International Meteorological Congress.***—In conclusion, I beg to call attention to the importance of a personal inspection by yourself of the European weather bureaus on the occasion of the forthcoming International Congress.

I have the honor to remain, very respectfully yours,

CLEVELAND ABBE,
Professor and Assistant.

[Inclosures.]

PAPER A.—Monthly constants.
PAPER B.—Locations of Signal Service barometers.
PAPER C.—Sketch of progress in tornado study.
PAPER D.—Progress in study of thunder storms.
PAPER E.—Lectures delivered by Professor Upton.
PAPER F.—Sketch of a course of study in meteorology.
PAPER G.—Questions for non-competitive examination.
PAPER H.—Questions for competitive examination.

PAPER A.

MONTHLY CONSTANTS FOR REDUCTION TO SEA LEVEL.

GENERAL ORDERS }
No. 5. }

SIGNAL OFFICE, WAR DEPARTMENT,
Washington, January 10, 1884.

The following revised list of monthly constants for the reduction of barometric observations is published for the information of all concerned. The column headed "Altitude" contains the elevation above sea level of the barometers at the several stations, as adopted by this office. The letter B denotes that the altitude has been obtained from barometric readings. The values given in this column will be used on all forms instead of values heretofore in use.

Monthly constants for the reduction to sea level of barometric observations made at Signal Service stations.

Station.	Altitude.	Reduction constant for each month.											
		Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Albany, N. Y	75	0.09	0.09	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.08	0.09
Alexander, Fort, Alaska	38	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.05	0.05
Alpena, Mich	609	0.71	0.71	0.70	0.69	0.66	0.65	0.64	0.64	0.65	0.67	0.70	0.71
Apache, Fort, Ariz	5,050 B	5.12	5.10	5.02	4.92	4.82	4.75	4.74	4.72	4.86	4.90	5.10	5.08
Assinaboine, Fort, Mont	2,710 B	3.04	3.04	3.01	2.90	2.84	2.79	2.73	2.75	2.85	2.92	2.98	3.03
Atlanta, Ga	1,129	1.23	1.22	1.21	1.19	1.17	1.15	1.15	1.15	1.17	1.19	1.22	1.23
Atlantic City, N. J	13	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Augusta, Ga	183	0.20	0.20	0.20	0.19	0.19	0.19	0.19	0.19	0.19	0.19	0.20	0.20
Baltimore, Md	45	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Barnegat City, N. J	22	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02

Monthly constants for the reduction to sea level of barometic observations, &c.—Continued.

Station.	Altitude.	Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
		Reduction constant for each month.											
Behring's Island, Behring Sea.	20	0.02	0.02	0.02	0.03	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Bennett, Fort, Dak	1,510 B	1.74	1.73	1.70	1.64	1.56	1.54	1.54	1.54	1.59	1.62	1.69	1.76
Benton, Fort, Mont	2,694 B	2.98	3.00	2.98	2.86	2.79	2.77	2.71	2.79	2.84	2.91	2.96	3.00
Bismarck, Dak	1,694	2.00	1.98	1.92	1.88	1.79	1.76	1.78	1.76	1.80	1.88	1.93	2.02
Block Island, R. I	27	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Boisé City, Idaho	2,750 B	2.93	2.96	2.92	2.84	2.84	2.78	2.72	2.75	2.77	2.86	2.94	2.98
Boston, Mass	142	0.17	0.16	0.16	0.16	0.16	0.15	0.15	0.15	0.15	0.16	0.16	0.16
Brownsville, Tex	59	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06	0.06
Buffalo, N. Y	690	0.79	0.79	0.78	0.77	0.74	0.73	0.72	0.72	0.73	0.75	0.77	0.79
Buford, Fort, Dak	1,930 B	2.23	2.21	2.16	2,10	2.00	1.99	1.96	1.98	2.02	2.10	2.16	2.27
Cairo, Ill	377	0.42	0.42	0.42	0.41	0.40	0.39	0.39	0.39	0.40	0.40	0.42	0.42
Canby, Fort, Wash	179	0.20	0.20	0.20	0.20	0.20	0.19	0.19	0.19	0.20	0.20	0.20	0.20
Cape Henry, Va	16	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Cape May, N. J	27	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Cape Mendocino, Cal	637	0.70	0.70	0.69	0.69	0.68	0.68	0.68	0.68	0.68	0.69	0.70	0.70
Cedar Keys, Fla	22	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Charleston, S. C	52	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.06	0.06	0.06
Charlotte, N. C	808	0.89	0.89	0.88	0.86	0.84	0.83	0.83	0.83	0.84	0.86	0.88	0.89
Chattanooga, Tenn	783	0.86	0.86	0.85	0.83	0.81	0.81	0.80	0.80	0.81	0.83	0.85	0.86
Cheyenne, Wyo	6,105	6.27	6.27	6.20	6.02	5.89	5.76	5.71	5.72	5.88	6.04	6.23	6.30
Chicago, Ill	661	0.75	0.75	0.74	0.73	0.70	0.69	0.69	0.69	0.69	0.71	0.74	0.76
Chincoteague, Va	18	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Cincinnati, Ohio	620	0.69	0.69	0.69	0.67	0.65	0.65	0.64	0.64	0.65	0.66	0.69	0.70
Cleveland, Ohio	690	0.78	0.79	0.78	0.76	0.73	0.73	0.72	0.72	0.72	0.74	0.77	0.79
Coleman City, Tex	1,709	1.88	1.88	1.85	1.82	1.79	1.75	1.76	1.74	1.79	1.82	1.89	1.90
Columbus, Ohio	805	0.90	0.90	0.89	0.87	0.84	0.84	0.83	0.83	0.84	0.86	0.89	0.91
Concho, Fort, Tex	1,900 B	2.02	2.02	1.97	1.94	1.90	1.87	1.88	1.86	1.90	1.95	2.01	2.02
Custer, Fort, Mont	3,040 B	3.38	3.36	3.33	3.18	3.10	3.06	3.02	3.06	3.12	3.24	3.32	3.40
Davenport, Iowa	615	0.71	0.70	0.69	0.67	0.64	0.64	0.63	0.63	0.65	0.66	0.69	0.71
Davis, Fort, Tex	4,940 B	4.98	4.96	4.88	4.79	4.72	4.61	4.64	4.65	4.70	4.85	4.90	4.94
Dayton, Wash. T	1,667 B	1.81	1.82	1.82	1.76	1.76	1.75	1.72	1.72	1.75	1.79	1.79	1.84
Deadwood, Dak	4,600 B	4.95	4.92	4.84	4.69	4.52	4.44	4.43	4.44	4.56	4.68	4.84	4.99
Delaware Breakwater, Del	20	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Denver, Colo	5,294	5.52	5.52	5.44	5.27	5.16	5.04	5.01	5.02	5.11	5.26	5.50	5.52
Des Moines, Iowa	849	0.97	0.97	0.96	0.93	0.89	0.88	0.88	0.88	0.89	0.92	0.95	0.98
Detroit, Mich	661	0.76	0.75	0.75	0.73	0.70	0.69	0.69	0.69	0.69	0.71	0.74	0.76
Dodge City, Kans	2,517	2.75	2.74	2.73	2.64	2.55	2.51	2.50	2.48	2.55	2.63	2.74	2.80
Dubuque, Iowa	665	0.77	0.76	0.75	0.73	0.70	0.69	0.69	0.69	0.70	0.72	0.75	0.77
Duluth, Minn	687	0.81	0.81	0.79	0.77	0.75	0.73	0.72	0.72	0.74	0.76	0.79	0.82
Eastport, Me	61	0.07	0.07	0.07	0.07	0.07	0.07	0.06	0.07	0.07	0.07	0.07	0.07
Elliott, Fort, Tex	2,650 B	2.93	2.90	2.83	2.78	2.70	2.67	2.64	2.64	2.69	2.79	2.93	2.96
El Paso, Tex	3,764 B	3.88	3.88	3.80	3.74	3.64	3.59	3.60	3.60	3.65	3.74	3.85	3.86
Erie, Pa	681	0.77	0.77	0.77	0.75	0.72	0.72	0.71	0.71	0.71	0.73	0.76	0.77
Escanaba, Mich	612	0.72	0.72	0.71	0.69	0.66	0.65	0.64	0.64	0.66	0.67	0.70	0.72
Fort Smith, Ark	449	0.50	0.50	0.49	0.48	0.47	0.46	0.46	0.46	0.47	0.48	0.49	0.50
Galveston, Tex	40	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Grand Haven, Mich	620	0.71	0.71	0.70	0.69	0.66	0.65	0.65	0.65	0.66	0.67	0.70	0.71
Grant, Fort, Ariz	4,860 B	4.90	4.86	4.83	4.73	4.61	4.54	4.57	4.57	4.60	4.70	4.84	4.88
Hatteras, N. C	12	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Helena, Mont	4,100 B	4.43	4.40	4.37	4.26	4.17	4.12	4.06	4.09	4.17	4.30	4.38	4.38
Huron, Dak	1,305	1.54	1.52	1.48	1.45	1.35	1.34	1.33	1.34	1.38	1.43	1.48	1.54
Indianapolis, Ind	753	0.84	0.85	0.84	0.82	0.79	0.78	0.77	0.77	0.78	0.80	0.84	0.85
Indianola, Tex	26	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Jacksonville, Fla	43	0.05	0.05	0.05	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.06	0.05
Keokuk, Iowa	618	0.70	0.70	0.69	0.67	0.65	0.64	0.63	0.63	0.65	0.67	0.69	0.71
Key West, Fla	20	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Kitty Hawk, N. C	22	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02	0.02
Knoxville, Tenn	980	1.08	1.08	1.06	1.04	1.02	1.01	1.00	1.01	1.02	1.04	1.07	1.08
La Crosse, Wis	725	0.84	0.84	0.82	0.80	0.76	0.76	0.75	0.75	0.77	0.79	0.82	0.85
Leavenworth, Kans	842	0.96	0.95	0.94	0.91	0.88	0.87	0.86	0.86	0.88	0.90	0.94	0.96
Lewiston, Idaho	780 B	0.87	0.87	0.86	0.85	0.84	0.82	0.81	0.81	0.83	0.85	0.87	0.88
Little Rock, Ark	298	0.33	0.33	0.33	0.32	0.31	0.31	0.31	0.31	0.31	0.32	0.33	0.33
Los Angeles, Cal	371	0.40	0.40	0.40	0.40	0.40	0.39	0.39	0.39	0.39	0.40	0.40	0.40
Louisville, Ky	530	0.59	0.59	0.59	0.57	0.55	0.55	0.55	0.55	0.55	0.57	0.59	0.60
Lynchburg, Va	652	0.72	0.72	0.72	0.71	0.68	0.67	0.67	0.67	0.68	0.69	0.72	0.73

Monthly constants for the reduction to sea level of barometric observations, &c.—Continued.

Station.	Altitude.	Reduction constant for each month.											
		Jan.	Feb.	Mar.	April.	May.	June.	July.	Aug.	Sept.	Oct.	Nov.	Dec.
Mackinaw City, Mich	605	0.70	0.70	0.70	0.68	0.65	0.64	0.64	0.64	0.65	0.67	0.69	0.70
Macon, Fort, N. C	11	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01	0.01
Maginnis, Fort, Mont	4,340 B	4.55	4.54	4.52	4.40	4.32	4.28	4.24	4.27	4.34	4.44	4.51	4.54
Marquette, Mich	673	0.78	0.78	0.77	0.75	0.72	0.72	0.71	0.71	0.72	0.74	0.77	0.78
Memphis, Tenn	321	0.36	0.35	0.35	0.34	0.33	0.33	0.33	0.33	0.34	0.34	0.35	0.36
Milwaukee, Wis	697	0.80	0.80	0.79	0.77	0.74	0.74	0.73	0.73	0.74	0.76	0.79	0.81
Mobile, Ala	41	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Montgomery, Ala	219	0.24	0.24	0.24	0.23	0.23	0.23	0.22	0.23	0.23	0.23	0.24	0.24
Moorhead, Minn	923	1.11	1.10	1.08	1.03	0.98	0.97	0.96	0.97	0.99	1.02	1.06	1.11
Mount Washington, N. H	6,279	6.63	6.62	6.52	6.41	6.18	6.12	6.07	6.08	6.15	6.34	6.56	6.63
Myer, Fort, Va	267	0.30	0.30	0.30	0.29	0.28	0.28	0.28	0.28	0.28	0.29	0.30	0.30
Nashville, Tenn	549	0.61	0.61	0.60	0.58	0.57	0.56	0.56	0.56	0.57	0.58	0.60	0.61
New Haven, Conn	107	0.12	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.12	0.12	0.12
New London, Conn	47	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
New Orleans, La	52	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
New York City	164	0.19	0.19	0.18	0.18	0.18	0.17	0.17	0.17	0.17	0.18	0.18	0.19
Norfolk, Va	30	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
North Platte, Nebr	2,841	3.12	3.10	3.06	2.96	2.87	2.80	2.80	2.80	2.88	2.96	3.08	3.16
Olympia, Wash T	36	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04	0.04
Omaha, Nebr	1,113	1.27	1.27	1.25	1.21	1.16	1.14	1.13	1.14	1.17	1.20	1.24	1.29
Oswego, N. Y	304	0.35	0.35	0.34	0.34	0.33	0.32	0.32	0.32	0.32	0.33	0.34	0.35
Palestine, Tex	538	0.58	0.58	0.57	0.56	0.55	0.54	0.54	0.54	0.55	0.56	0.57	0.58
Pensacola, Fla	30	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Philadelphia, Pa	92	0.11	0.11	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.10	0.11
Pike's Peak, Colo	14,134	12.70	12.72	12.59	12.28	12.06	11.82	11.78	11.79	11.98	12.28	12.66	12.66
Pittsburg, Pa	766	0.85	0.86	0.85	0.83	0.80	0.79	0.79	0.79	0.79	0.82	0.85	0.86
Poplar River, Mont	2,030 B	2.35	2.35	2.30	2.20	2.12	2.10	2.06	2.08	2.15	2.22	2.29	2.36
Port Huron, Mich	633	0.73	0.73	0.72	0.70	0.68	0.67	0.66	0.66	0.67	0.69	0.72	0.73
Portland, Me	45	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
Portland, Oreg	67	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Prescott, Ariz	5,340 B	5.38	5.36	5.34	5.22	5.10	5.02	4.99	4.98	5.10	5.16	5.34	5.37
Provincetown, Mass	26	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Red Bluff, Cal	332	0.37	0.37	0.37	0.36	0.35	0.35	0.34	0.35	0.35	0.36	0.37	0.37
Rio Grande City, Tex	230 B	0.25	0.25	0.24	0.24	0.24	0.23	0.23	0.24	0.24	0.24	0.25	0.25
Rochester, N. Y	621	0.71	0.71	0.70	0.69	0.66	0.65	0.65	0.65	0.65	0.67	0.70	0.71
Roseburg, Oreg	511	0.57	0.57	0.56	0.56	0.55	0.55	0.54	0.54	0.55	0.56	0.57	0.57
Sacramento, Cal	65	0.08	0.08	0.08	0.08	0.08	0.07	0.07	0.07	0.07	0.08	0.08	0.08
Saint Louis, Mo	583	0.66	0.66	0.65	0.63	0.61	0.60	0.60	0.60	0.61	0.62	0.65	0.66
Saint Michael's, Fort, Alaska	30	0.04	0.04	0.04	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.04
Saint Paul, Minn	801	0.94	0.93	0.91	0.88	0.84	0.84	0.83	0.83	0.85	0.87	0.91	0.95
Saint Vincent, Minn	804	0.98	0.97	0.94	0.91	0.86	0.85	0.84	0.85	0.87	0.90	0.93	0.99
Salt Lake City, Utah	4,348	4.57	4.56	4.52	4.37	4.32	4.22	4.18	4.19	4.25	4.40	4.57	4.54
San Diego, Cal	67	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Sandusky, Ohio	639	0.72	0.72	0.72	0.70	0.67	0.67	0.66	0.66	0.67	0.69	0.72	0.73
Sandy Hook, N. J	28	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03	0.03
Sanford, Fla	50 B	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05	0.05
San Francisco, Cal	60	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07	0.07
Savannah, Ga	87	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10
Shaw, Fort, Mont	3,550 B	3.86	3.85	3.80	3.67	3.60	3.57	3.51	3.53	3.61	3.70	3.82	3.83
Shreveport, La	227	0.25	0.25	0.25	0.24	0.24	0.23	0.23	0.23	0.24	0.24	0.25	0.25
Sill, Fort, Ind. T	1,200 B	1.33	1.31	1.29	1.24	1.22	1.20	1.20	1.18	1.22	1.26	1.31	1.33
Sitka, Alaska	63	0.07	0.07	0.07	0.07	0.06	0.06	0.06	0.06	0.06	0.07	0.07	0.07
Smithville, N. C	34	0.04	0.04	0.04	0.04	0.04	0.04	0.03	0.04	0.04	0.04	0.04	0.04
Spokane Falls, Wash T	1,906	2.14	2.13	2.13	2.06	2.05	2.04	1.98	2.00	2.04	2.08	2.08	2.13
Springfield, Ill	644	0.73	0.73	0.72	0.70	0.67	0.67	0.66	0.66	0.67	0.69	0.72	0.73
Stockton, Fort, Tex	3,010 B	3.14	3.13	3.08	3.03	3.01	2.92	2.94	2.94	2.96	3.03	3.12	3.14
Tatoosh Island, Wash T	86	0.10	0.10	0.10	0.09	0.09	0.09	0.09	0.09	0.09	0.09	0.10	0.10
Thomas, Fort, Ariz	2,710 B	2.83	2.83	2.78	2.73	2.67	2.63	2.59	2.62	2.64	2.71	2.84	2.82
Toledo, Ohio	651	0.74	0.74	0.73	0.71	0.68	0.68	0.67	0.67	0.68	0.70	0.73	0.74
Unalashka, Alaska	13	0.02	0.02	0.02	0.02	0.02	0.01	0.01	0.01	0.01	0.02	0.02	0.02
Vicksburg, Miss	244	0.27	0.27	0.26	0.26	0.25	0.25	0.24	0.24	0.25	0.26	0.27	0.27
Washington City	106	0.12	0.12	0.12	0.12	0.11	0.11	0.11	0.11	0.11	0.12	0.12	0.12
West Las Animas, Colo	3,899	4.13	4.12	4.07	3.95	3.85	3.77	3.75	3.74	3.82	3.98	4.11	4.15
Wilmington, N. C	52	0.06	0.06	0.06	0.06	0.05	0.05	0.05	0.05	0.05	0.05	0.06	0.06
Yankton, Dak	1,228	1.42	1.42	1.39	1.34	1.28	1.28	1.27	1.27	1.29	1.33	1.38	1.43
Yuma, Ariz	141	0.15	0.15	0.15	0.15	0.15	0.14	0.14	0.14	0.14	0.14	0.15	0.15

Paper B.

Locations of Signal Service barometers on January 1, 1883, *and all subsequent changes up to June* 30, 1884.

Stations.	Latitude.	Longitude.	Elevation January 1, 1883.	Remarks.
	° ′	° ′	*Feet.*	
Albany, N. Y	42 39	73 45	75	
Alexander, Fort, Alaska	53 54	153 14	....	
Alpena, Mich	45 5	83 30	609	
Apache, Fort, Ariz	33 48	109 57	5,050 B	
Assinaboine, Fort, Mont	48 32	109 42	2,710 B	Moved March 12, 1884. H = 2,720.
Atlanta, Ga	33 45	84 23	1,131	Moved January 6, 1883. H = 1,129.
Atlantic City, N. J	39 22	74 25	13	
Augusta, Ga	33 28	81 54	183	
Baltimore, Md	39 18	76 37	45	
Barnegat City, N. J	39 46	74 6	22	
Behring's Island, Behring Sea	55 12	165 55 E	20	
Bennett, Fort, Dak	44 43	100 39	1,510 B	
Benton, Fort, Mont	47 50	110 40	2,694 B	Changed April 1, 1884. H = 2,681.
Billings, Mont	45 49	108 30	3,122	
Bismarck, Dak	46 47	100 38	1,694	
Block Island, R. I	41 10	71 36	27	
Boise City, Idaho	43 37	116 8	2,750 B	
Boston, Mass	42 21	71 4	142	
Brownsville, Tex	25 53	97 26	59	New level value. Moved January 31, 1884. H = 57.
Buffalo, N. Y	42 53	78 53	696	Moved November 1, 1883. H = 690.
Buford, Fort, Dak	48 0	103 56	1,930 B	
Burlington, Vt	44 29	73 13	268	Station discontinued June 15, 1883.
Cairo, Ill	37 0	89 10	377	
Canby, Fort, Wash. T	46 16	124 4	....	Established September 1, 1883. H = 179.
Cape Henry, Va	36 56	76 0	16	
Cape May, N. J	38 56	74 58	27	
Cape Mendocino, Cal	40 26	124 24	637	
Cedar Keys, Fla	29 8	83 2	22	
Champaign, Ill	40 8	88 14	767	Discontinued June 15, 1883.
Charleston, S. C	32 47	79 56	52	
Charlotte, N. C	35 13	80 51	808	
Chattanooga, Tenn	35 4	85 15	783	
Cheyenne, Wyo	41 8	104 48	6,089	Moved December 1, 1883 H = 6,105.
Chicago, Ill	41 52	87 38	661	
Chimo, Fort, Ungava Bay, Labrador.	59 0	68 0	....	
Chincoteague, Va	37 55	75 23	18	Moved June 1, 1884. H = 8.
Cincinnati, Ohio	39 6	84 30	620	
Cleveland, Ohio	41 30	81 42	690	
Columbus, Ohio	39 58	83 0	805	
Concho, Fort, Tex	31 25	100 24	1,900 B	
Custer, Fort, Mont	45 42	107 34	3,040 B	Made 3d class, January 1, 1883. 1st class June 8, 1883.
Davenport, Iowa	41 30	90 38	615	
Davis, Fort, Tex	30 38	103 56	4,940 B	Moved March 3, 1884. H = 4,928 B.
Dayton, Wash. T	46 19	117 56	1,667 B	Moved August 1, 1883. H = 1,683 B.
Deadwood, Dak	44 23	103 43	4,600 B	
Delaware Breakwater, Del	38 48	75 10	20	
Denison, Tex	33 48	96 32	767	Discontinued June 15, 1883.
Denver, Colo	39 45	105 0	5,294	
Des Moines, Iowa	41 35	93 37	849	
Detroit, Mich	42 20	83 3	661	Barometer moved 7 inches. H = 662.
Dodge City, Kans	37 45	100 0	2,512	Moved December 15, 1883. H = 2,517.
Dubuque, Iowa	42 30	90 44	665	
Duluth, Minn	46 48	92 6	687	
Eagle Pass, Tex	28 44	100 29	780 B	Discontinued June 15, 1883.
Eagle Rock, Idaho	43 32	111 55	4,650	Moved May 26, 1883, H = 4,654 Discontinued June 15, 1883.
Eastport, Me	44 54	66 59	61	
Elliott, Fort. Tex	35 30	100 21	2,650 B	
El Paso, Tex	31 47	106 30	3,764 B	
Erie, Pa	42 7	80 5	681	
Escanaba, Mich	45 48	87 5	612	Barometer moved March 1, 1884, H = 613.
Fort Smith, Ark	35 22	94 24	451	
Galveston, Tex	29 18	94 47	48	Moved March 15, 1883, H = 40.
Grand Haven, Mich	43 5	86 18	620	
Grant, Fort, Ariz	32 39	109 57	4,860 B	Moved February 21, 1884, H = 4,856 B.
Hatteras, N. C	35 15	75 40	19	Moved October 1, 1883, H = 12.
Helena, Mont	46 34	112 4	4,100 B	Moved January 1, 1884, H = 4,044.
Huron, Dak	44 21	98 9	1,305	
Indianapolis, Ind	39 46	86 10	758	

Locations of Signal Service barometers on January 1, 1883, *&c.*—Continued.

Stations.	Latitude.		Longitude.		Elevation January 1, 1881.	Remarks.
	°	'	°	'	*Feet.*	
Indianola, Tex	28	32	96	31	26	
Jacksonville, Fla	30	20	81	39	43	
Keogh, Fort, Mont	46	22	105	56	2, 372	Discontinued June 15, 1883.
Keokuk, Iowa	40	22	91	26	618	
Key West, Fla	24	34	81	49	20	
Kitty Hawk, N. C	36	0	75	42	22	
Knoxville, Tenn	35	56	83	58	980	
La Crosse, Wis	43	49	91	15	725	
Lady Franklin Bay, Grinnell Land.	81	20	64	58	....	
Leavenworth, Kans	39	19	94	57	842	
Lewiston, Idaho	46	8	117	5	780 B	
Little Rock, Ark	34	45	92	6	298	Barometer raised April 1, 1884, H=299.
Los Angeles, Cal	34	3	118	15	371	
Louisville, Ky	38	15	85	45	530	
Lynchburg, Va	37	25	79	9	652	
McKavitt, Fort, Tex	30	48	100	7	2, 240 B	Discontinued April 21, 1883.
Mackinaw City, Mich	45	47	84	39	605	
Macon, Fort, N. C	34	42	76	40	11	
Madison, Wis	43	5	89	24	949	Discontinued April 1, 1883.
Maginnis, Fort, Mont	47	12	109	10	4, 340 B	
Marquette, Mich	46	34	87	24	673	
Memphis, Tenn	35	9	90	3	321	
Milwaukee, Wis	43	2	87	54	697	
Mobile, Ala	30	41	88	2	41	Moved June 1, 1884. H = 35.
Montgomery, Ala	32	23	86	18	219	
Moorhead, Minn	46	52	96	44	923	
Morgantown, W. Va	39	40	79	50	963	Discontinued April 1, 1883.
Mount Washington, N. H	44	16	71	18	6, 279	
Nashville, Tenn	36	10	86	47	549	
New Haven, Conn	41	18	72	56	107	
New London, Conn	41	21	72	5	47	
New Orleans, La	29	58	90	4	52	
Newport, R. I	41	29	71	19	44	Discontinued April 1, 1883.
New York City	40	43	74	0	164	
Norfolk, Va	36	51	76	17	30	
North Platte, Nebr	41	8	100	45	2, 841	
Olympia, Wash. T	47	3	122	53	36	
Omaha, Nebr	41	16	95	56	1, 113	
Ooglaamie, Point Barrow, Alaska.	71	16	156	40	17	
Oswego, N. Y	43	29	76	35	304	
Palestine, Tex	31	45	95	40	533	
Pensacola, Fla	30	25	87	13	30	
Philadelphia, Pa	39	57	75	9	92	Moved April 1, 1884. H = 117.
Pike's Peak, Colo	38	50	105	2	14, 134	
Pioche, Nev	37	56	114	26	6, 110 B	Discontinued June 15, 1883.
Pittsburg, Pa	40	32	80	2	766	
Poplar River, Mont	48	8	105	10	2, 030 B	
Port Eads, La	29	9	89	15	7	Discontinued April 1, 1883.
Port Huron, Mich	43	0	82	26	633	
Portland, Me	43	39	70	15	45	
Portland, Oreg	45	32	122	43	67	
Prescott, Ariz	34	33	112	28	5, 340 B	Moved March 19, 1884. H = 5, 389 B.
Provincetown, Mass	42	3	70	11	26	
Punta Rasa, Fla	26	29	82	1	13	Moved May 9, 1883. H = 14. Discontinued June 15, 1883.
Red Bluff, Cal	40	10	122	15	332	
Rio Grande City, Tex	26	23	98	48	230 B	Discontinued January 1, 1883. Re-established June 8, 1883.
Rochester, N. Y	43	8	77	42	621	Discontinued June 15, 1883. Re-established October 10, 1883.
Roseburg, Oreg	43	13	123	20	511	
Sacramento, Cal	38	35	121	30	65	Moved February 1, 1884. H = 64.
Saint Louis, Mo	38	38	90	12	568	Moved September 15, 1883. H = 583.
Saint Michael's, Fort, Alaska	63	28	161	48	30	
Saint Paul, Minn	44	58	93	3	811	Moved April 16, 1883. H = 801.
Saint Vincent, Minn	48	56	97	14	804	
Salt Lake City, Utah	40	46	111	54	4, 348	
San Antonio, Tex	29	25	98	25	673	Discontinued June 15, 1883.
San Diego, Cal	32	43	117	10	67	
Sandusky, Ohio	41	25	82	40	630	
Sandy Hook, N. J	40	28	74	0	28	
Sanford, Fla	28	48	81	23	50 B	
San Francisco, Cal	37	48	122	26	60	
Santa Fé, N. Mex	35	41	105	57	7, 106	Discontinued June 15, 1883.
Savannah, Ga	32	5	81	5	87	
Shaw, Fort, Mont	47	31	111	48	3, 550 B	
Shreveport, La	32	30	93	40	227	

Locations of Signal Service barometers on January 1, 1883, *&c.*—Continued.

Stations.	Latitude.		Longitude.		Elevation January 1, 1883.	Remarks.
	°	′	°	′	*Feet.*	
Sill, Fort, Ind. T	34	40	98	28	1, 200 B	
Sitka, Alaska	57	3	135	19	63	
Smithville, N. C	33	55	78	1	34	
Spokane Falls, Wash. T	47	40	117	25	1, 906	
Springfield, Ill	39	48	89	39	644	
Springfield, Mo	37	12	93	18	1, 351	Discontinued June 15, 1883.
Starkville, Miss	33	35	88	49	455	Discontinued June 15, 1883.
Stevenson, Fort, Dak	47	35	101	28	1, 750 B	Discontinued May 27, 1883.
Stockton, Fort, Tex	30	53	102	53	3, 010 B	
Tatoosh Island, Wash	48	23	124	44	....	Established October 1, 1883. H = 86.
Thomas, Camp, Ariz	33	4	110	2	2, 710 B	
Toledo, Ohio	41	40	83	34	651	
Totten, Fort, Dak	47	57	98	57	....	Established May, 1884. H = 1,500.
Umatilla, Oreg	45	55	119	20	340 B	Discontinued April 1, 1883.
Unalashka, Alaska	53	53	166	32	13	
Vicksburg, Miss	32	22	90	53	244	
Visalia, Cal	36	20	119	17	348	Discontinued June 15, 1883.
Washakie, Fort, Wyo	43	1	108	54	5, 580 B	Discontinued June 15, 1883.
Washington City	38	54	77	3	106	
West Las Animas, Colo	38	4	103	12	3, 905	Changed March 1, 1883. H = 3, 899.
Williamsport, Pa	41	15	77	3	561	Discontinued June 15, 1883.
Wilmington, N. C	34	14	77	57	52	
Yankton, Dak	42	54	97	28	1, 228	
Yuma, Ariz	32	45	114	36	141	

PAPER C.

SKETCH OF PROGRESS IN TORNADO STUDY.

Previous to 1882 the study of tornadoes was principally confined to the occasional investigation of one that was unusually destructive. During that year Sergeant Finley's Professional Paper No. VII was published, which classified a large list of tornadoes embracing a period of nearly 90 years and comprising a record of over 600 storms and stations.

Besides a brief summary of results deduced from a study of the tables, this paper also presented suggestions concerning the plan to be pursued in conducting the investigation of any tornado.

This work, together with that accomplished by the investigations of 1879 (see S. S. Professional Paper No. IV), led to the belief that a permanent system for the observation and report of tornadoes should be established. This system was to embrace not only what might be attained in the investigation of a single tornado, but to afford means for the elaborate study of these storms during an entire season or continuously year after year. During 1882 the plan here indicated was tried by Sergeant Finley and found to be practicable, and in accordance therewith a brief but satisfactory study was made of the tornadoes of that year.

The tornado work of 1882 was confined almost entirely to the States of Arkansas, Missouri, Kansas, Nebraska, Iowa, Illinois, and Michigan. The tracks of the very destructive tornadoes of April 6, April 18, and June 17, occurring in the States of Michigan, Missouri, Kansas, and Iowa, were carefully examined.

While Sergeant Finley was established at Kansas City, Mo., as a base of operations, about 2,500 reports were received by him from special correspondents during the months of May to August, inclusive. Another feature of the work for 1882 was the publication of several circulars and pamphlets; the circulars invited the co-operation of intelligent persons residing in tornado districts in the investigation of tornadoes undertaken by the Signal Service, and furnished such as would accept of the duties imposed, instructions as to the character and extent of the data desired. The pamphlets considered briefly and in a simple manner the various classes of local storms and the distinguishing features of each. A large part of these papers was devoted to a presentation of the peculiar characteristics of tornadoes, conditions of development, and progressive movement, together with suggestions as to the best means for the protection of life and property.

The work of 1882, although essentially preliminary, was in the main productive of very satisfactory results, and laid the foundations for more decisive action and permanent advance in the following year. During 1883 the sickness of Sergeant Finley for two months and a change of station interfered somewhat with a continuation of tornado studies; but notwithstanding this hindrance a large number of special correspondents were secured, several thousands reports received, and instructions prepared for the establishment of a corps of voluntary observers, to be called "tornado reporters," who should agree to contribute observations, without expense to the Signal Service, to aid in the investigation of tornadoes.

During this year also special circulars of inquiry and instruction were prepared for the purpose of securing the records of past tornadoes and ascertaining the location and nature of "windfalls."

By the end of 1883 over 120 tornado-reporting stations were established.

Early in 1884 a new feature of study was introduced, under the name of preliminary tornado charts, prepared for the purpose of showing the relation between tornado centers and areas of barometric minimum. Four of these charts were issued as a tornado circular, each of which gave a study of the tornadoes occurring on any one day. These preliminary circulars have been prepared for the following dates of tornadoes: February 19, March 11, 25, April 1, 14, 27, 28, May 5, 18, 21, June 7, 8, July 4 and 5, 1884.

Tornado predictions were commenced experimentally on the 10th of March, in compliance with Instructions No. 27, Special Orders February 26, 1884, and continued after April 23, in accordance with Instructions No. 56, Special Orders April 18, 1884. During March and a portion of April predictions were made twice daily, at intervals of eight hours. The first prediction was made from a study of the morning weather maps and covered the eight hours up to 3 p. m. The second prediction was made from a study of the afternoon (3 p. m.) weather maps and covered the eight hours up to 11 p. m.

During the remainder of April and for the month of May and June predictions were made from a study of the morning weather maps and covered the sixteen hours up to 11 p. m.

Some attention has been given to the collection of photographs, sketches, and drawings illustrating the forms of tornado clouds, the detailed progressive movement, and the disposition of *débris* in the tornado's path. Several hundred of such illustrations have been carefully filed in large albums especially prepared to receive them, forming an interesting and valuable record.

For the purpose of preserving a complete numerical record of tornado statistics, elaborate blank books have been prepared. The abstracts are very carefully made, and so classified and indexed that a tornado of any particular date or location can be readily referred to and a brief history of its leading features obtained.

Other books of simpler form are used for entering a brief but complete summary of all the reports received concerning any particular tornado. These books are so arranged that the data contained can be readily referred to for purposes of study.

PAPER D.

PROGRESS IN THE STUDY OF THUNDER-STORMS.

Early in January, 1884, a plan was proposed by Professor Hazen whereby, with the co-operation of the Post-Office and War Departments, detailed data might be collected regarding thunder-storms. This plan received the indorsement of the Postmaster-General and has led to excellent results. Cards were sent to stations 40 miles apart over the whole country east of the one hundred and second meridian and north of the thirty-fifth parallel; they were also sent to stations 10 miles apart in the States of Illinois and Indiana, as representing the West, and also to stations the same distance apart within 150 miles of Washington City; finally, cards were sent to post-offices about 3 miles apart within 50 miles of Washington City. During May and June, 1884, over 2,000 records of storms were received from observers or culled from the daily newspapers. The storms of May 16 to 20 were selected for special study, and a paper was written by Professor Hazen, which has been ordered to be printed as a Signal Service note. The storms of June 6 to 10 were also selected for special study. Daily maps of thunder-storm distribution have been drawn, and these promise to give important results.

PAPER E.

COURSE OF LECTURES DELIVERED BY PROFESSOR UPTON AT FORT MYER.

[The lectures, ten in number, were given on November 26, December 1, 4, 8, and 10–12, 1883. The first seven of these lectures were devoted to the subject of solar radiation and climate, and were prepared expressly for this class. The method of treatment was as follows:]

LECTURE I.

After a brief introduction upon deductive and inductive methods applied to meteorology, the topic of distribution of solar heat was considered. The theories of the sun's constitution and the sources of its energy were explained, and the distribution of heat over the earth's surface, neglecting the effect of the atmosphere, was shown to be dependent upon the sun's altitude, the length of the day, and the distance of the sun from the earth. Numerous illustrations were given in explanation of these topics.

LECTURE II.

The modifications in the distribution of solar heat introduced by the atmosphere were next considerated, under the heads of general absorption, diffusion, and reflection, and appropriate illustrations were introduced. The measurements of solar radiation or actinometry by the dynamic method was next explained and illustrated by the actinometers of Balfour Stewart, and Violle, which were exhibited to the class.

LECTURE III.

The subject of actinometry was further discussed with special reference to the static method. The conjugate thermometers of Mariè Davy and the conjugate bulbs of Violle were exhibited and their theory and use explained.

LECTURE IV.

This was devoted to the subject of selective absorption. Especial prominence was given to the recent investigations of Professor Langley. The topic of aqueous absorption was discussed, together with observations of the rain-band with the spectroscope.

LECTURE V.

The previous discussion on the distribution of solar heat led to the subject of climate. First, the climatic factors were explained and the division of climate into continental, insular, and mountain were made. The characteristics of continental and insular climate and their causes were pointed out and illustrated.

LECTURE VI.

Mountain climate, with its characteristics respecting each of the climatic factors, was discussed, followed by an examination of the modifications of climate due to aerial and marine currents.

LECTURE VII.

The preceding lectures having brought the subject down to climate as actually experienced, the subject of climatic statistics was introduced, and it was shown what were the most important meteorological observations from this point of view, and how they can best be arranged and discussed to bring out the condition of any place with regard to climate.

In the above lectures references were made to Newcomb's Astronomy; Young's Sun; Radau's Actinometrie; Hann's Klimatologie; Haughton's Physical Geography; Blodgett's Climatology of the United States; and to various articles on the subjects discussed which have been published in scientific journals.

The remaining lectures of the course were upon the subject of time, and were made up in the main from the lectures formerly given on this subject, abstracts of which are published in the Annual Report of the Chief Signal Officer for 1882.

LECTURE VIII.

This lecture discussed the measurement of time, explaining the distinction between sidereal and solar time, and also the methods of determining time and longitude.

LECTURE IX.

This lecture discussed the distribution of time signals and made special mention of the subject of time balls.

LECTURE X.

This was devoted to standard time, and reviewed the history of the efforts to simplify the time standards, with a critical discussion of the various methods proposed.

The state of the subject in this country at the present time was dwelt upon, and also its bearing upon the work of this service.

The lectures were given extemporaneously, an outline of each lecture having first been written upon the blackboard. The blackboard was freely used in the course of each lecture, and a number of charts were also employed for additional illustration. A written exercise, occupying half an hour, was invariably given before each lecture, composed of five questions upon the leading points of the preceding lecture.

PAPER F.

SUGGESTED COURSE IN METEOROLOGY FOR SCIENTIFIC SCHOOLS.

The course should embrace all of the subjects treated of in the following paragraphs, which may, however, be rearranged to suit the necessities of each case:

1. Maintenance by each student of a daily record, as complete as possible, of his own actual observations of weather, wind, &c., for at least one year.
2. Analysis of this same record; construction of wind roses, &c.; determination by inductive methods of some local atmospheric laws.
3. Special observations, *e. g.*, with polarimeter, cyanometer, spectroscope, &c.; work in atmospheric electricity; photography of clouds; terrestrial magnetism, auroras, &c., and deduction of special results.
4. Theory and corrections of ordinary meteorological instruments—barometer, thermometer, anemometer, evaporimeter, wet-bulb, hygrometer, &c.
5. Study of United States weather maps and generalizations on a large scale, and empirical prediction of weather for twenty-four hours in advance.
6. Study of meteorological charts for the world, and general ideas as to distribution of temperature, moisture, pressure, winds, &c.
7. Experimental determination of fundamental data, *e. g.*, solar heat and atmospheric absorption, coefficient of expansion of air by heat, latent heat of expansion and condensation, friction of air on air, water, &c., resistance of objects to wind.
8. Theoretical study of fundamental mechanical laws deduced by Ferrel, Guldberg and Mohn, Schoch, Sprung, Weilenmann, Chambers, Thomson, and others.
9. Application of these latter to philosophical deductive methods of predicting weather and seasons.

Beginning with a small meteorological and physical observatory and instruments, all not to cost above $10,000, it is probable that $10,000 more would be needed within a year or two as the classes increase and the institution takes a wider range. The higher part of the course presupposes acquaintance with differential and integral calculus, analytical mechanics, thermo-dynamics, &c., all of which are now taught in scientific schools.

PAPER G.

QUESTIONS FOR NON-COMPETITIVE EXAMINATION BEFORE THE UNITED STATES CIVIL SERVICE COMMISSION.

1. SUBJECT: *Familiarity with French and German scientific literature.*

(*a.*) Enumerate the principal French and German scientific treatises that you have studied in the original languages.

(*b.*) Correct and translate the following extracts, including the references in the foot-note:

Kirchoff, Mechanik, 13. Vorlesung. Die tropf baren Flussigkeiten zeigen gewisse Erscheinungen, die man Capillar-Erscheinungen nennt und als Wirkungen der Capillar-Kräfte ansieht. Laplace hat die erste Theorie der Capillarerscheinungen aufgestellt und ist bei dieser von der Hypothese ausgegangen, dass die Capillarkräfte Kräfte sind mit denen die Theile der Körper einander anziehn, und die bei wachsender Entfernung so schnell abnehmen, dass sie bei messbarer Entfernung nicht mehr merklich sind. Dieselbe Hypothese hat später Gauss[*] strenger verfolgt als es von Laplace geschehen ist und ist dadurch zu einem Principe geführt, das wir folgendermassen aussprechen können.

Wenn zwei verschiedenartige Körper in einer Fläche sich berühren so wirken in Folge hiervon Kräfte, die ein Potential haben, welches gleich der grösse der Beruhrungsfläche, multiplicirt mit einer von der Natur der beiden Körper abhangigen Constanten ist. Diese Kräfte sind die Capillarkräfte.

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[*] Principia generalia theoriæ figuræ fluidorum in statu æquilibrii: Carl Friedrich Gauss' Werke, *Bd.* V, p. 20.

Translate the following extract:

(c.) Mascart, Traité d'Electricite Statique, Chapitre VI.

Nous n'avons employé jusqu'à présent dans le calcul des phenomenes electriques que des considerations elementaires, des raissonements directs empruntés pour la plupart á Coulomb mais on est bientôt arrêté dans cette voie on ne pont évaluer ainsi les actions qui s'exercent entre deux corps electrises que dans des cas tont a fait particuliers, et il n'est presque aucun phenomene de condensation dont on puisse rendre compte d'une maniere entierement satisfaisante. Il est donc nécessaire d'avoir recours a des méthodes de calcul plus générales.

2. SUBJECT: *Mathematics, including the theory of errors.*

(a.) Given the angles B and C and the side a of a plane triangle. Required, the formula or method of finding the angle A and sides b and c.

(b.) Deduce the equation of the circle referred to rectangular axes, having the origin at the center, and again having the origin in the circumference.

(c.) Explain the general method of determining the maximum and minimum values of any function and illustrate this by application to the equation $y = 3x^3 - 2x^2$.

(d.) What is the fundamental principle of the method of least squares ?

(e.) Given the following individual measures of a certain quantity:

38.91	39.04	39.35	39.32
39.32	39.57	39.25	39.40
38.93	39.46	39.14	39.33
39.31	39.30	39.47	39.28
39.17	39.03	39.29	39.62

Find the mean error of the arithmetical mean of these measures.

3. SUBJECT: *Mechanics, synthetic* and *analytic.*

(a.) State and explain the principle of virtual velocities.

(b.) State and explain the principle of conservation of areas.

(c.) Show that in a compressible atmosphere the altitudes vary as the logarithms of the pressures.

4. SUBJECT: *Theory of instruments:*

(a.) Give the formula or the method for correcting the observations of stars with the meridian-transit instrument and deducing the proper clock correction.

(b.) Explain all important sources of error in the use of the barometer and the corrections needed for reduction to standard gravity.

(c.) Explain the method of determining the horizontal magnetic intensity by the method of deflections.

5. SUBJECT: *Molecular physics:*

(a.) Explain the influence on velocity of sound, of the compression and expansion of the air in front and rear of an advancing wave of sound, and state the amount of, or formula for Laplace's correction of Newton's theory.

(b.) State and illustrate the laws of cooling by radiation, known as Newton's and Dulong and Petit's.

(c.) Explain the ordinary law of refraction of light at a single bounding surface and deduce the fundamental differential equation for the refraction of rays entering the earth's atmosphere.

(d.) State Ohm's law and explain and illustrate its application in Wheatstone's bridge and in the location of faults in telegraph lines.

6. SUBJECT: *Meteorology:*

(a.) What is the best means by which to illustrate and comprehend the general distribution of temperature, pressure, &c., over the earth's surface ? Draw these lines on the accompanying map.

(b.) What are the general relations between gradients and winds as to directions and intensity ?

(c.) By what process is the air ordinarily cooled sufficiently to produce rain ?

(d.) What are the best methods for determining the amount of aqueous vapor in the air ?

(e.) How does the diurnal rotation of the earth affect the motions of the air ?

(f.) What hypotheses as to the origin of atmospheric electricity are probably erroneous and what do we know as to its origin ?

7. SUBJECT: *Mathematical computations:*

(a.) Calculate the values of y for each fifth degree from 10° to 20° in the series of values of the angle A.

$$Y = (3A - 4 \sin A)^{\frac{1}{4}}.$$

[The computation should be systematically and neatly arranged. Bowditch's "Useful Tables" is supplied for your use.]

8. SUBJECT: *Personal experience and ability:*

(*a.*) Enumerate your published original investigations.

(*b.*) Enumerate some of your unpublished or proposed original studies.

(*c.*) Give an analysis of the course of reasoning, experiments, and results embodied in some one of the above titles under (*a*) and specify the points needing further study in order to confirm the results.

(*d.*) Suggest a course of study proper to elucidate some doubtful point in the laws of the paths pursued by local storms.

PAPER H.

QUESTIONS FOR COMPETITIVE EXAMINATION BEFORE THE UNITED STATES CIVIL SERVICE COMMISSION.

[Army Signal Office, Series No. 1.—Special Examination.]

SUBJECT: TRANSLATION FROM FRENCH.

Question 1.—Translate the following after correcting any errors that may be noticed:

Le Service Américain Des Signaux. Si l'on a le droit de dire que l'idée de faire servir le baromètre à la prévision du temps est éminemment française, on doit reconnaitre que c'est aux Américains que l'on doit l'dée féconde de réunir en un seul faisceau les forces de plusieurs nations pour étudier en commun les grands problèmes dont s'occupe la Météorologie. Des le 9 fevrier 1852, M. Walsh, consul des Etats-Unis à Paris, communiquait à Arago une série de documents officiels etablissant l'avantage qu'il y aurait a adopter un système uniforme d'observation. A la suite de cette ouverture, un Congrès météorologique se réunis sait, en août 1853, à Bruxelles, sons la presidence de M. Quetelet.—[De Fonvielle—La Prévision du Temps p. 39–40.]

SUBJECT: TRANSLATION FROM GERMAN.

Question 2.—Translate the following after correcting any errors that may be noticed:

Die Formel 3) habe ich mit den Resultaten mehrerer Versuche verglichen und mit denselben in Übereinstimmung gefunden, damit also zugleich den experimentellen Nachweis für die Anwendbarkeit der Formel 1) auf den betrachteten Verdampfungsprocess gegeben. Die Formel 1) bildet zugleich die Grundgleichcng für die mathematische Behandlung der stationären Verdampfungsprocesse überhaupt. Wenn irgend eine Oberfläche einer Flüssigkeit in einer Atmosphäre sich befindet, welche mit dem Dampfe der Flüssigkeit nicht gesattigt ist, so wird aus der Oberfläche Dampf in die Atmosphäre eintreten, und wenn die äusseren Bedingungen es gestatten, auch ein stationärer zustand der Verdampfung sich einstellen. Dieser wird folgende elgenthumlichkeiten darbieten.—[Stefan, Wien Sitzung-berich, LXXXIII, 1881.]

SUBJECT: MATHEMATICS.

Question 1.—Deduce the general formula for the cosine of any side of a spherical triangle in terms of the other sides and the opposite angle.

Question 2.—Deduce the polar equation of the ellipse, the pole being at the center.

Question 3.—Find the maximum and minimum values of u in the equation.

$$u = a \sin X + b \cos X.$$

Question 4.—Integrate by development into an infinite series the expression:

$$u = \int \frac{dx}{\sqrt{1-x^2}}$$

Question 5.—The probable error of the average of 10 measures of a quantity is ± 0.015 and the mean error of the average of 15 other measures is ± 0.018. What is the probable error of the average of these two results, giving each a weight depending on its respective probable error?

SUBJECT: MECHANICS.

Question 1.—Prove that the time of vibration of a simple pendulum is $T = \pi \sqrt{\frac{l}{g}}$

Question 2.—Prove that the atmospheric pressures at the elevations x_1 and x_2 above sea-level are connected by the formula $\log \frac{p_1}{p_2} = A\,(x_2 - x_1.)$

Question 3.—Explain the cause of the phenomenon in the flow of liquids known as the *vena contracta*.

Question 4.—State the general principles of the kinetic theory of the constitution of gases.

Subject: Theory of Instruments.

Question 1.—State the sources of error in thermometers and in the various methods of determining the temperature of the air.

Question 2.—Explain a method of calibration and calculation of the calibration errors of thermometers.

Question 3.—Explain the method of determining the tension of any air that may be present in the vacuum chamber of a mercurial barometer.

Question 4.—Explain the theory of the optical principles involved in the ordinary astronomical sextant.

Question 5.—Explain the method of determining the dip of the magnetic needle by the use of the dip-circle.

Subject: Molecular Physics.

Question 1.—Define the terms "*specific* heat at constant pressure," and "specific heat at constant volume," and state what is the ratio of the values of these for simple gases.

Question 2.—Give the formula for the total quantity of heat expressed in calories required to transform water at zero into vapor at the temperature T.

Question 3.—Explain the thermo-dynamic principle by virtue of which dry air cools as it rises in the atmosphere.

Question 4.—Explain in general terms the theory of the origin of bright and dark bands in the spectrum.

Question 5.—Explain the method of determining the temperature of a distant coil of wire by counterbalancing its resistance to the passage of an electric current.

Question 6.—Waves of sound proceed simultaneously from all parts of a long straight flash of lightning; find the law according to which the intensity of the thunder will increase or diminish as heard by any observer.

Question 7.—Explain the formation of optical diffraction bands or fringes.

Subject: Meteorology.

Question 1.—At what latitude is the greatest amount of solar heat received in 24 hours on the 21st of June by a horizontal surface at the upper limit of the earth's atmosphere?

Question 2.—Give a diagram presenting the diurnal variations of the barometric pressure, and show what combination of two observations will give a good daily mean pressure.

Question 3.—Describe the general distribution of temperature, wind, and pressure over the North Atlantic Ocean during July.

Question 4.—Explain the general cause of the low pressure in the Arctic, Antarctic and equatorial regions.

Subject: Numerical Computations.

Question 1.—Compute the values of $y = \sqrt[5]{144-(16-x)^2}$ for the successive values of x from 0 to 10.

[Logarithmic tables must be used and the work must be arranged in a neat form.]

Subject: Personal Experience and Ability.

[The following questions form the second part of this examination; they may, if the candidate prefer, be taken home by him and answered after free reference to such books as he may choose to consult, the object being to illustrate his readiness in collecting data and investigating special subjects. He is required to compile his replies without consulting with any other *person*. The replies must be communicated by mail or in person on or before the second of May to the "Civil Service Commission, Washington, D. C.," and be accompanied by a letter in a separate envelope stating that they have been compiled without consultation with any person, but solely relying upon published books and the candidate's own knowledge. They must be written on sheets to be furnished herewith.]

Question 1.—Enumerate the scientific publications that you have carefully read in the original languages.

Question 2.—Enumerate the titles of any considerable scientific publications of which you are the author, in whole or in part. [Give references to the places of publication of each.]

Question 3.—State the nature and extent of your work and experience in pure or applied science.

Question 4.—Submit a synopsis of some proposed new and original course of investigation of some subject bearing on meteorology or its applications.

Question 5.—Submit an investigation deducing a formula for correcting, for instrumental temperatures, the readings of a barograph constructed as follows: A steel siphon barometer-tube of uniform bore rests on a bed-plate to which is also attached a vertical brass frame supporting a revolving vertical brass drum, on which latter are recorded the oscillations of the upper end of a light glass rod whose lower enlarged end floats on the surface of the mercury in the short open leg of the siphon.

Question 6.—Submit a sketch of a memoir, with illustrative diagrams, showing the latest results of observations on the frequency and distribution of auroras over the northern hemisphere. [A sketch of the contents of each chapter of the memoir will suffice, but you will be expected to give full references to any authorities whence the needed information can be obtained.]

Question 7.—Submit a sketch of a memoir on the various methods of determining the heights of the clouds and the results of actual observations on this subject. [In the absence of any desired book of reference, name the work to which you would refer as authority or as containing the needed observations.]

Question 8.—Submit a sketch of a memoir on the influence of a body of water, such as the lakes or the ocean, upon the temperature of the air over and around it, taking account of solar radiation, atmospheric absorption, evaporation, vertical currents, cloudiness, rainfall, fog, direction and force of the wind, melting of snow and ice, ocean currents, &c.

[Give, as before, full references to the authorities on these subjects.]

APPENDIX 5.

REPORT ON UNITED STATES MILITARY TELEGRAPH LINES, FOR THE YEAR ENDING JUNE 30, 1884.

SIGNAL OFFICE, *Washington, June* 30, 1884.

The total number of miles of line in operation at the beginning of the year was 2,864; 53 miles of new line were built during the year, and 112 miles abandoned, leaving 2,805 miles in operation at the present date, distributed as follows, viz:

	Miles.
California and Arizona Division	510
Department of the Missouri	693
Northwestern Division	893
Texas Division	197
Washington and Idaho Division	500
San Francisco Harbor	12

The total line receipts during the year were, for this line, $14,891.90; for other lines, $24,111.86. As anticipated in last year's report, the withdrawal of detailed men of the line of the Army from permanent duty with the military telegraph lines as operators and repairers, and the small force of Signal Corps men available for such duties, have seriously embarrassed this office in maintaining some of the more isolated sections in a proper state of efficiency. While such temporary assistance as is permitted under the provisions of General Orders No. 35 of 1883, and No. 3 of 1884, Adjutant General's Office, has usually been given freely by department and post commanders, yet men thus temporarily detailed, for a few days only, and without additional pay for such extra labor, could not be expected to do as efficient and lasting work as men permanently detailed, fitted by experience, and receiving just compensation, would have performed. Besides, the delay occasioned in applying for and getting ready a detail to start out on the line when a break occurred occasioned at times interruptions of much longer duration than would have been the case had there been permanent repairmen ready to mount and start out at a moment's notice. Another point is to be considered in this connection. On some of the lines in Texas, New Mexico, and Montana it is almost impossible to hire labor when the operator is unable to make proper repairs alone, or if labor can be had, the price asked is so excessive that the means at the command of this office will not permit its payment; so that either the repairs have to be made poorly by one man or the line has to remain open until the commanding officer at the nearest post can furnish a detail.

In view of the foregoing it is recommended that a law be secured permitting the permanent detail of 50 enlisted men from the line of the Army for duty with the military lines, and payment of extra-duty pay to the same from line receipts, as in former years.

Below follows a report of the operations and present condition of the several divisions:

CALIFORNIA AND ARIZONA DIVISION.

Capt. G. T. Olmsted, U. S. A., who had charge of this division at date of last report, was relieved August 14, 1883, by First Lieut. Marion P. Maus, First Infantry, acting signal officer, who remains in charge.

The number of miles of wire in operation at the beginning of the fiscal year was 512; of this munber 47 miles were abandoned as no longer necessary for military purposes, and 8 miles, from Fort Cummings to Florida Station, were transferred to another division October 31, 1883. Fifty-three miles of new line were built during the year, making a total of 510 miles in operation at the present date, divided into the following sections or circuits, viz:

	Miles.
Maricopa and Prescott section	280
Fort Bowie and Fort Apache section	216
Tucson and Fort Lowell section	7
Fort Huachuca and Huachuca section	7

The construction of a commercial line connecting Fort Bayard with Silver City, N. Mex., rendered unnecessary the military line between Forts Bayard and Cummings, which, being old and in poor condition, was therefore abandoned during the month of October, 1883, and sold at public auction January 2, 1884. The line between Fort Bayard and Lordsburg, which had been abandoned during last fiscal year, was similarly disposed of October 17, 1883.

In order to insure reliable communication at all times to the department headquarters at Whipple Barracks, a new line, 53 miles in length, was constructed between Prescott and Ash Fork, a station on the Atlantic and Pacific Railroad. This line affords a convenient outlet for Prescott, especially in case of interruption on the line south to Maricopa, distant 160 miles, which was formerly the only outlet for this section. It is built entirely of iron poles and excellent wire. Work began January 14, and the line was completed and in operation March 7, 1884.

Following is a brief description of the sections constituting the California and Arizona Division:

MARICOPA AND PRESCOTT SECTION.

Offices at Ash Fork, Fort Verde, Prescott, Wickenburg, Phœnix, Fort McDowell, and Maricopa. Section is maintained to afford telegraphic communication to department headquarters and the posts at Forts Verde and McDowell; also as an outlet for the meteorological reports from Prescott. Extensive repairs were made on this section between Prescott and Phœnix during August and September, 1883, and again in March and May, 1884, after a series of destructive storms and floods. The line between Prescott and Fort Verde, being old, was almost entirely rebuilt during June. The whole section between Ash Fork and Maricopa is now in excellent condition and will probably need very little repairs during the coming year. All the labor of building the new line and making general repairs was done by troops, with but little expense to this service.

FORT BOWIE AND FORT APACHE SECTION.

Offices at Fort Apache, Fort Thomas, San Carlos, Fort Grant, Willcox, and Fort Bowie. Section affords telegraphic communication to the posts named and an outlet for meteorological reports from Fort Apache. This section has been, by constant repairs, kept in fair condition, but stands now in need of general repairs. Nine hundred iron poles, 1,000 insulators and 30 miles of new wire were ordered shipped from here to Willcox during May, and but for the delay in the arrival of this material, repairs would have been made before the end of the fiscal year.

TUCSON AND FORT LOWELL SECTION.

This section is operated as a telephone line, and the instruments and service are rented from the Arizona Telephone Company at an annual rental of $50. The line has been thoroughly repaired, and gives satisfaction in all respects.

FORT HUACHUCA AND HUACHUCA SECTION.

This section is also operated by telephone, the rental of instruments being paid by the Quartermaster's Department. It has needed no general repairs during the year.

Following were the receipts of the California and Arizona Division during the year, viz:

Receipts for this line	$5,377 40
Receipts for other lines	11,810 31

Besides the commercial business, an immense amount of official and "dead-head" business was done, the aggregate money value of which amounted to $5,444.45.

[Extract from annual report of Lieutenant Maus.]

"* * * The department commander has expressed himself as entirely satisfied with the military telegraph lines since my assignment to duty as officer in charge, and stated that the trouble he had complained of during the time of my predecessor had entirely disappeared and that the lines were in all respects satisfactory. Every assistance has been rendered by the department commander in repairing the telegraph lines, and it is confidently believed that no further trouble will be experienced in maintaining the necessary military telegraph service in this division."

LINES IN THE DEPARTMENT OF THE MISSOURI.

Lieut. W. A. Glassford, Signal Corps, continued in charge of this division until November 30, 1883, when he was transferred to the central office. The short, isolated sections, a few miles in length only, and each connecting a military post with the nearest commercial office, were equipped as telephone lines and turned over to the post commanders. The Signal Corps operators at such posts were relieved and transferred to other points. The larger sections, connecting two or more posts, were retained as Morse lines, and are now operated under the immediate supervision of the chief operators, subject to the orders of the telegraph officer at this office.

The following lines abandoned during the previous year were sold at public auction, viz: Gunnison to Uncompahgre, 81 miles, July 28, 1883; Rawlins to Camp on White River, 144 miles, September 15, 1883. The total number of miles of line in operation at the beginning of the year was 685; received by transfer during the year, 8 miles (Fort Cummings to Florida Station); total now in operation, 693 miles, comprised in the following circuits or sections:

	Miles.
Indian Territory lines	438
Fort Thornburg to Carter Station	90
Fort Stanton to San Marcial	121
Fort Union to Watrous	9
Fort Lewis to Durango	15
Uncompahgre to Montrose	9
Fort Cummings to Florida Station	8
Fort Wingate to Wingate	3

The first three named sections are operated as Morse lines by Signal Corps operators. The other sections were equipped as telephone lines and operated as such with varying success, this service employing a joint operator at each transfer point, except at Wingate, where the Quartermaster's Department pays all expenses of the telephone service. Between Fort Lewis and Durango, the telephones supplied by this office have been in continuous use and have worked very satisfactorily. Improper ground connections caused trouble at first, but since a copper ground is used the line is working well.

Between Fort Wingate and Wingate, Bell telephones are used with satisfactory results.

Between Fort Union and Watrous the line is again operated with Morse instruments, the telephones supplied from this office not having proved satisfactory. An enlisted man of the post acts as operator at Fort Union.

A similar report has been received concerning the Uncompahgre-Montrose line, but the present officer in charge ascribes the failure of the telephones to inexperience on the part of those attempting to use them, and recommends another trial by men familiar with their use.

At Fort Cummings ineffectual attempts were made to operate the telephone with Florida station. The line is again worked as a Morse line with the officer in charge as operator. This line will probably be abandoned in the near future.

With one exception, the regular Morse lines manned by Signal Corps men were operated with but ordinary interruptions throughout the year. Heavy snows in the mountains between Forts Bridger and Thornburg made repairs impossible during part of the winter and spring, but as Fort Thornburg has not been garrisoned since the fall of 1883, no serious inconvenience resulted from the interruption. Below follows a brief description of each Morse section:

INDIAN TERRITORY SECTION.

Offices at Dodge City, Kans., Fort Supply, Ind. T., Fort Elliott, Tex., Cantonment, Fort Reno, Fort Sill, Ind. T., and Henrietta, Tex. Is maintained to furnish telegraphic communication to the posts named, also for transmission of weather reports from Forts Elliott and Sill. This section is liable to many interruptions from prairie fires, thunder-storms, floods, and malicious acts of cowboys and outlaws, but repairs are made with but little delay, as the commanding officers at the various posts are always very prompt in furnishing details and transportation whenever called upon. The section has now a large proportion of iron poles, which are exempt from damage by lightning and prairie fires, and is generally in good repair except at the river crossings, where recent floods have done considerable damage. The spans across the Canadian River between Forts Elliott and Supply, and between Forts Reno and Sill, were carried away about the 1st of June, and owing to continued high water temporary repairs could be made only. A new supply of steel wire has been ordered shipped for these spans, and the best possible repairs will be made as soon as the waters subside, but the spans will always be at the mercy of the next high water. Cables are out of the question in the shifting quicksands, and there seems to be no complete remedy for these periodical breaks within the limited means at the command of this office.

FORTS THORNBURG AND BRIDGER SECTION.

Offices at Forts Thornburg and Bridger, with the transfer office at Carter Station, Wyo. This section was operated by the Quartermaster's Department until June 30, 1883, when it was turned over to the Signal Service. General repairs to the whole line were made by Captain Penney, of the Sixth Infantry, during the fall of 1883, and the line worked satisfactorily until February, when the mountains became impassable, and repairs between Fort Bridger and Fort Thornburg had to be suspended. Communication between Fort Bridger and the transfer office at Carter was, however, not interrupted. Temporary repairs between Bridger and Thornburg were made on snowshoes during April, and the line will receive a thorough overhauling as soon as the snow has melted. The repair station at Young's Spring, midway between Bridger and Thornburg, has been discontinued, but as the line cannot be satisfactorily maintained without an intermediate station, it should be re-established if Fort Thornburg is again occupied by troops.

FORTS CRAIG AND STANTON SECTION.

Offices at Forts Craig and Stanton; transfer office at San Marcial, N. Mex. No serious trouble occurred on this section until May, when, owing to the great rise in the Rio Grande, part of the line between Fort Craig and San Marcial was submerged. Steps have been taken to string our wire on the Western Union poles from the railroad crossing to San Marcial, which will prevent similar trouble in the future. During the continuance of the flood the Fort Craig operator crossed the river once a day to send and receive the Fort Stanton business. This line was largely built of old material recovered from abandoned lines, and some 50 miles on the Fort Stanton repair section were built of pine poles, which are now rotting rapidly. On the Fort Craig section the poles are mostly cedar and few need replacing. One thousand iron poles have been ordered shipped, and general repairs will be made along the whole line as soon as the poles are all distributed.

Following are the line receipts of the Department of the Missouri lines during the year, viz:

Receipts for this line	$2,077 14
Receipts for other lines	3,244 79

TEXAS DIVISION.

Second Lieut. L. E. Sebree, Signal Corps, remained in charge until December 31, 1883, when he was transferred to Washington. The lines in Texas have since been under the direct control of the officer in charge of the telegraph division of this office, with the local management of sections in charge of the chief operators.

The extensive abandonment of lines in this division during the preceding year left but 262 miles in operation at the beginning of the present fiscal year, and this was still further reduced by the abandonment on September 5, 1883, of the line from Fort Concho to Coleman, 65 miles long. A private company, purchasing and operating the abandoned military line between San Antonio and Fort Concho furnished all necessary telegraphic facilities to the latter post, and the line to Coleman was, with the approval of the department commander, abandoned as above stated. This leaves only two sections in operation at the present time, namely, Brownsville to Rio Grande City, 100 miles, and Fort Stockton via Fort Davis to Marfa, 97 miles. Total in operation, 197 miles.

Of the lines abandoned during the preceding and current years, only portions of one section were recovered, viz, 88 miles between Eagle Pass and Rio Grande; the remaining sections, under authority from the Secretary of War, were sold at public auction as follows, viz:

Section.	Length.	Date of sale.
	Miles.	
Henrietta to Coleman	181	July 20, 1883
Fort Concho to Fort Stockton	158	July 20, 1883
San Antonio to Fort Concho	222	July 20, 1883
San Antonio to Eagle Pass	167	July 20, 1883
Coleman to Fort Concho	65	Oct. 20, 1883
Part of line, Eagle Pass to Rio Grande	127	Dec. 5, 1883
Total	920	

Following is a brief description of the remaining sections, viz:

BROWNSVILLE TO RIO GRANDE CITY.

Offices at Brownsville, Edinburg, and Rio Grande City. Section affords telegraphic communication to Forts Brown and Ringgold and the sub-post at Edinburg, also an outlet for meteorological reports from Rio Grande City. Section has worked satisfactorily and is in good condition. Most of the wooden poles have been replaced by iron ones recovered from the abandoned line above Rio Grande City. Near La Blanca the line was moved back from the river bank to prevent being washed out. All of the labor in keeping up line is performed by details from posts, and the expenses for repairs have been very light.

FORT STOCKTON TO MARFA.

Offices at Forts Stockton and Davis; transfer office at Marfa. Supplies telegraphic communication to the posts named and an outlet for meteorological reports from Fort Stockton. The line has worked satisfactorily during the year, but on account of decaying poles stands in need of a thorough overhauling between Davis and Stockton. The necessary material is on the spot, and general repairs will be made by troops during July. A large number of iron poles will be used to replace defective wooden ones.

Between Fort Davis and Marfa the line is reported in excellent condition, being entirely on iron poles.

Following are the receipts in the Texas division during the year, viz:

Receipts for this line	$1,692 64
Receipts for other lines	1,961 42

WASHINGTON AND IDAHO DIVISION.

Second Lieut. Frank Greene, Signal Corps, remained in charge of this division until June 30, 1884, when he was assigned to other duty, and the local supervision of the various sections given to the chief operators acting under direct orders from this office.

The Fort Klamath section, 223 miles long, was transferred to this division June 30, 1883, and the sections from Pomeroy to Spokane Falls, and from Fort Cœur d'Alene to Summit, were abandoned on the same date, leaving a total of 500 miles in operation during the year, divided into sections or circuits as follows, viz:

	Miles.
Dayton, Wash. T., to Fort Lapwai, Idaho	68
Port Angeles, Wash. T., to Tatoosh Island, Wash. T	80
Astoria, Oreg., to Fort Canby, Wash. T	28
Fort Spokane, Wash. T., to Fort Cœur d'Alene, Idaho	91
Fort Bidwell, Cal., to Ashland, Oreg	233

The sections abandoned during the preceding year were, by authority of the Secretary of War, sold at public auction on August 25, 1883.

The station on Tatoosh Island was connected by a strong three-conductor cable, 2 miles long, with the land line terminating at Cape Flattery. The line from the cape to Port Angeles had been completed and equipped since March, 1883. Various causes delayed arrival of cable, which was laid November 10, 1883, by First Lieut. James Allen, 3d Cavalry, acting signal officer and assistant, and has worked faultlessly up to the present time.

Another cable, 4 miles in length, was laid by the same officer on October 10, 1883, across the mouth of the Columbia River, forming part of the military telegraph line connecting Astoria, Oreg., with Forts Stevens and Canby. This cable was washed out at the northern end during December, when a quarter of a mile of new cable was spliced on and the end carried back to high ground, since when communication through it has been uninterrupted.

Substantial and comfortable houses were built upon the light-house reservations at Fort Canby and on Tatoosh Island, which are now occupied by our men as meteorological and telegraph offices.

Following is a brief description of the several sections constituting the Washington and Idaho Division, viz:

DAYTON AND FORT LAPWAI SECTION.

Offices at Dayton, Lewiston, and Fort Lapwai. Section is maintained for the purpose of affording telegraphic communication to Fort Lapwai. Line has been kept in fair condition with ordinary repairs, but many poles are now becoming rotten and need resetting. General repairs were delayed upon the recommendation of Lieutenant Greene, as the abandonment of Fort Lapwai rendered it doubtful whether this section should be retained after the withdrawal of the troops. The department commander having urgently recommended maintenance of section, steps have been taken to have it repaired before winter. The stations were inspected during the year by Lieutenant Greene and found in good condition.

FORT SPOKANE AND FORT CŒUR D'ALENE SECTION.

Offices at Fort Spokane, Spokane Falls, and Fort Cœur d'Alene. Section is maintained to afford telegraphic communication to Forts Spokane and Cœur d'Alene. General repairs were made to section during September and again in June, and it is now reported in good condition. Decaying poles will have to be replaced during next spring. The stations were inspected by Lieutenant Greene in September and found in good condition, excepting Spokane Falls, which required a change of operators to bring it up to the standard.

CAPE FLATTERY SECTION.

Offices at Port Angeles, Pysht, Neah Bay, and Tatoosh Island, with repair stations at Crescent Bay and Hoko. Section is maintained to transmit weather and vessel reports from Tatoosh Island, which station communicates by means of the international code of signals with vessels passing in and out of the straits of San Juan de Fuca. Although passing through a wilderness, densely wooded, the line has been kept working with but few interruptions, and has given much satisfaction. General repairs were made on the Port Angeles and Crescent Bay sections, where fires and a landslide did some damage; other sections required ordinary repairs only. Trails are being cut by repairmen, and the whole section is reported in very good condition.

ASTORIA AND FORT CANBY SECTION.

Offices at Astoria, Fort Stevens, and Fort Canby. Section is maintained to furnish telegraphic communication to Forts Stevens and Canby, also for the transmission of meteorological, vessel, and bar reports from the Canby station. A large flagstaff is erected upon the highest ground near Fort Canby, and by means of the international code of signals vessels passing in and out of the Columbia River are communicated with. The condition of the bar is reported thrice daily in a special message to the Portland, Oreg., Chamber of Commerce, which reports prove of value to merchants, shippers, and pilots. General repairs to section were made during May, and the line is now in excellent condition. Offices were inspected by Lieutenant Greene in September and found in good condition.

FORT KLAMATH SECTION.

Offices at Ashland, Linkville, Fort Klamath, Lakeview, and Fort Bidwell. Section furnishes telegraphic communication to Forts Bidwell and Klamath, with transfer office at Ashland. A repair station was maintained at Parker's, Oreg., near the summit of the Cascade Mountains, during the winter, which proved very useful in speedily reaching the location of the most frequent breaks. This station should be re-established during next winter, say from December 1 to April 30. General repairs were made to different portions of the line, some by troops and some by hired labor. The line is reported as being at present in a very fair condition except at points between Linkville and Fort Klamath, and between Lakeview and Fort Bidwell, where many poles are rotting. About 40 miles of wire between Linkville and Ashland, over the Cascade Mountains, is on trees, the swaying of which causes frequent breaks. Tree brackets and insulators have been recently sent to Fort Klamath, which will be used on the mountain section, doubtless effectually.

The offices on this section have not been inspected.

[Extracts from Lieutenant Greene's report.]

* * * "During the year telegraphic communication has been constant, with the exception of occasional interruptions caused by accidents, such as all telegraph lines are liable to meet, and the lines, both those that were maintained for purposes of military communication and those for purposes more intimately connected with meteorological and marine interests, have very eminently fulfilled their office.

"Whenever the active aid of the Army has been necessary, whether to furnish operators temporarily or details for repairs of greater extent or magnitude than the signal force could perform, I have found it only necessary to ask the proper authorities for assistance to receive it promptly and cheerfully."

Following are the receipts in the Washington and Idaho Division during the year, viz:

Receipts for this line	$2,276 31
Receipts for other lines	2,532 01

SAN FRANCISCO HARBOR.

As mentioned in last year's report, the land portion of the line connecting the Presidio with Alcatraz and Angel Islands was completed during November, 1882. The necessary cables to complete the circuit did not arrive at San Francisco until the following August. They were successfully laid by Lieut. James Allen, on September 19, 1883. On December 29, the cable between Alcatraz Island and Fort Mason was broken by the fouling of a ship's anchor. It was taken up, repaired, and relaid from Alcatraz Island to the Presidio wharf instead of to Fort Mason. It is believed that as now laid the liability of cable to injury is reduced to a minimum.

This line of wire and cables runs from the western shore of Angel Island across that island to Point Blunt, thence by a very strong three-conductor cable to Alcatraz Island; across the island and by a similar cable to the Presidio wharf, thence to the Presidio. A loop connects Fort Winfield Scott with the Presidio, thence the line runs to Fort Mason, its terminus. The total length of cables used is 4⅓ miles, of land lines 7⅓ miles. The line is operated entirely by the local military authorities, and the Signal Service has no offices in connection with it.

NORTHWESTERN DIVISION.

Second Lieut. W. D. Wright, Signal Corps, has remained in charge of this division during the year. Of the 1,184 miles of line ordered abandoned by instructions No. 59, series 1883, this office, 1,061 miles were, by authority of the Secretary of War, sold as public auction during the year; the remainder, 123 miles, between Bismarck and Fort Yates, was withheld from sale and is still in operation. Following are the sections sold at the dates named, viz:

Section.	Length.	Date of sale.
	Miles.	
Glendive to Terry's Landing, Mont	168	Sept. 15, 1883
Missoula, Mont., to Summit, Idaho	114	Sept. 15, 1883
Fort Custer to Helena, Mont	292	Sept. 15, 1883
Fort Bennett to Fort Meade, Dak	169	Dec. 22, 1883
Bismarck to Fort Buford, Dak	208	Dec. 22, 1883
Helena to Missoula, Mont	110	Mar. 15, 1884

The line between Missoula and Fort Missoula, 4 miles, was turned over to the post commander, together with the necessary instruments and battery material, and is operated for the convenience of the post, without expense to this service.

There now remain in operation under Lieutenant Wright 893 miles of line, divided into sections or circuits as follows, viz:

	Miles.
From Fort Assinaboine to Helena	208
From Fort Maginnis to Glendive	367
From Bismarck to Fort Bennett	182
From Fort Custer to Terry's Landing	30
From Fort Meade to Deadwood	15
From Fort Totten to Larimore	68
From Fort Sisseton to Webster	23

Excepting the sections between Fort Maginnis and Poplar River, and between Fort Meade and Deadwood, but little delay from breaks and other causes occurred during the year. Lieutenant Wright estimates that for needed general repairs in his division during the coming year about 670 poles will be required, at a total cost, including transportation, &c., of $1,255.

Following is a brief description of the several sections constituting the Northwestern Division:

FORT ASSINABOINE TO HELENA.

Offices at Forts Assinaboine, Benton, Shaw, and at Helena, the latter being the transfer point to other lines. Section is maintained to furnish telegraphic communication to the post named, also as an outlet for meteorological reports from Fort Assinaboine. The line is reported in fair condition, but will require new poles in the near future. The majority of the old poles will have to be reset and some 150 new ones put up before winter sets in.

FORT MAGINNIS FO GLENDIVE.

Offices at Fort Maginnis, Camp Poplar River, Fort Buford, and transfer office at Glendive. Between Glendive and Camp Poplar River the line has worked satisfactorily and with few interruptions, but it was found impossible to maintain the Fort

Maginnis-Poplar River section during the winter months. This section, 232 miles long, runs through a country almost destitute of wood and water, and requires a much larger force than this service can furnish to maintain it in a state of efficiency at all times. Outlaws infest the country, who frequently cut the line and render it unsafe for any but large parties to traverse it. During the month of May a repair station was established at Galpin and two civilians are now stationed there to keep the line in repair. At the same time strong details left Fort Maginnis and Poplar River and put the line in thorough order. Since June 1 it has been working with but slight interruptions, but the present repair force will not be able to maintain it during the coming winter.

BISMARCK TO FORT BENNETT.

Offices at Bismarck, Fort Yates, Fort Sully, and Fort Bennett. Section is maintained solely for military purposes and has two outlets, viz, Bismarck and Fort Sully. Communication with Fort Bennett has again been interrupted by the breaking of the crossing over the Missouri River. A span of over half a mile has to be made at that point and great difficulty is experienced in maintaining it. Cabling the river proved a failure some years ago. Lieutenant Wright recommends he be ordered there to personally superintend the construction of a new crossing and see if same cannot be maintained. It may be necessary to have a special wire ordered for this crossing. About 150 new poles are required on the section in making general repairs.

FORT CUSTER TO TERRY'S LANDING—FORT SISSETON TO WEBSTER—FORT TOTTEN TO LARIMORE.

Each of the above sections connects a military post with the nearest railroad office and is maintained solely for military purposes, except the line to Terry's Landing, which also provides an outlet for meteorological reports from Fort Custer. The sections are in good condition, and will require few repairs during next year.

FORT MEADE TO DEADWOOD.

This line has not been operated since February, owing to the fact that no operator could be had for Fort Meade. The post has telephonic communication, however, over a private line. Lieutenant Wright recommends that the line be again put in order, and equipped as a telephone line. Repairs to be made by troops at Fort Meade

[Extract from Lieutenant Wright's report.]

"It is deemed advisable if an officer is still to remain in charge of this division that he should go himself with the general repair parties every year when they start out in the fall. He should personally inspect every pole, bracket and insulator, and make every test possible to insure the lines being in perfect working order before cold weather sets in. When the lines are put in thorough order this way they will remain so, and, unless from unforeseen accidents, will require but little repairing during the winter."

Following were the line receipts in the Northwestern Division during the year:

Receipts for this line	$3,468 41
Receipts for other lines	4,563 33

THE SEA-COAST TELEGRAPH AND TELEPHONE LINES.

The operation of the sea-coast telegraph lines built by this service on the coasts of New Jersey, Delaware, Maryland, Virginia, and North Carolina, has been maintained with as much efficiency as the very limited appropriation would permit. In addition to the telegraph lines operated by enlisted men of the Signal Corps, a number of telephone lines, aggregating 120 miles in length, are maintained by this service jointly with the Life-Saving Service, which connect the chain of life-saving stations between Sandy Hook, N. J., and Barnegat, N. J., between Atlantic City and Brigantine Beach, N. J., and between Cape Henry, Va., and Kitty Hawk, N. C. As in the past, this system of lines has proved of great value to maritime and commercial interests, both as a means of supplying meteorological reports from the entire coast between Sandy Hook, N. J., and Cape Fear, N. C., and for obtaining early assistance to vessels in distress. Passing vessels are communicated with by means of the international code of signals, and the fact of their arrival made known hours in advance of reaching port.

The total length of sea-coast telegraph and telephone lines is now 618 miles. Leased lines connect them with this office and with the signal stations at Philadelphia and Baltimore. During the year a telephone line 9 miles long, including 5,700 yards of submarine cable, was constructed between Atlantic City and the north end of Brigantine Beach, N. J. A new submarine cable, 1¼ miles in length, was laid across Great Egg Harbor Inlet, N. J., the old cable after eleven years' service having entirely worn out.

The cables at Block Island, Barnegat Inlet, Hatteras Inlet, and Heady's Bay were also in bad condition at the beginning of the year and the Ocracoke Inlet cable had entirely given out. The Barnegat cable failed entirely during July, but as the small appropriation prevented the purchase of new cables or the making of extensive repairs to the land lines, nothing more than ordinary repairs could be accomplished except replacing the Great Egg Harbor cable before mentioned.

GENERAL REPAIRS NEEDED.

Between Sandy Hook and Barnegat Inlet about 20 miles of new poles and 300 insulators are required to put the line in thorough repair. From Little Egg Harbor to Atlantic City the line needs 3 miles of new poles, and from Atlantic City to Cape May 10 miles of new poles and 300 insulators.

Between Delaware Breakwater and Chincoteague and between Norfolk and Hatteras a number of poles need resetting, and some 700 insulators should be replaced.

Between Hatteras and Fort Macon about 7 miles of line should be rebuilt, and all iron poles, except 7 galvanized ones, replaced by new ones. The ungalvanized poles on this section have all rusted out. New wire is required, and a new cable, 3½ miles long, for Ocracoke Inlet, together with about 400 insulators and brackets. The Hatteras Inlet cable also requires repairs.

Between Macon and Sloop Point 69 miles of new wire are needed, 45 miles of new poles between Macon and Wilmington, also 500 insulators, and 1,000 yards new cable for Heady's Bay.

ESTIMATED EXPENSES OF GENERAL AND ORDINARY REPAIRS.

Amount needed for ordinary repairs, &c	$2,988 00
General repairs between Hatteras and Macon	350 00
Cost of Ocracoke cable	2,772 00
General repairs between Macon and Sloop Point	345 00
Total	6,455 00

As the available appropriation is but $5,500, it is recommended that the line be put in thorough repair between Macon and Smithville, and that the purchase of the Ocracoke cable, and the repairs to the Hatteras cable and to the line between Hatteras and Fort Macon be deferred until a more liberal appropriation is made for the sea-coast lines. The line between Hatteras and Macon is of no special value to the service, except as affording direct communication with the stations south of Hatteras, which during the past year has been replaced by communication via Western Union wires to Wilmington, N. C., without serious disadvantages.

BLOCK ISLAND CABLE.

This cable, 11¼ miles long, and connecting Block Island with Point Judith, thence by land line to the transfer office at Narragansett Pier, R. I., is in very bad condition, and will probably not last another winter. Congress, however, failed to make appropriation for a new cable during last session, and nothing can be done should the old one become useless.

NANTUCKET CABLE.

An appropriation of $40,000 was asked for, to establish telegraphic connection by submarine cables and land lines between Nantucket, via Martha's Vineyard, and to the mainland.

Only $20,000 was appropriated, which makes it necessary to change the route first proposed. I recommend the cable be now laid from Point Gammon, on the mainland, or from some point near it, direct to Nantucket Village, a distance of about 21 miles. The bay is widest there, consequently the tides least strong; the bottom is hard sand, and the cable will lie flat and soon bury itself. An objection to this route is that it crosses the bay where vessels are in the habit of anchoring, and there is danger of the cable being fouled by anchors.

The total cost of laying the cable from Nantucket to the mainland, at 44 cents per yard, would be about $17,000.

The other routes are objectionable on account of the strong currents and uneven bottoms.

This would allow $3,000 for building the land-line connections and equipping the offices.

If the appropriation is expended in this manner, only half of the intended telegraphic facilities is obtained, leaving Martha's Vineyard still unprovided for, although in doing so the law is complied with.

F. M. M. BEALL,
Second Lieutenant, Signal Corps.

SIGNAL OFFICE,
Washington, August 27, 1884.

APPENDIX 6.

REPORT OF THE OFFICER IN CHARGE OF THE METEOROLOGICAL OBSERVATORY, WITH REPORT OF PROF. THOMAS RUSSELL.

METEOROLOGICAL OBSERVATORY, SIGNAL OFFICE,
August 20, 1884.

To the CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.:

SIR: I have the honor to submit the following report for the year ending June 30, 1884:

During the past fiscal year nearly all of the self-recording instruments have been thoroughly overhauled, and many defects, especially the trouble heretofore experienced in keeping the clocks running uniformly, have been remedied. To insure absolute uniformity on the time scales in the chronograph barrels small lines are made tri-daily on the record sheets, all corresponding to a certain time on the mean-time clock. This procedure became necessary because the faulty construction of some of the instruments makes it impossible to regulate the clocks so as to cause them to turn the chronograph barrels with regularity.

The continuous barometric curves taken from some of the best self-recording barometers have been made use of by Mr. H. M. Paul in showing the remarkable phenomenon of atmospheric waves which followed the explosive eruption of Krakatoa during last August. This subject having been treated at length by Mr. Paul (see his paper in the American Meteorological Journal, May, 1884) only tracings of the most remarkable curves immediately following the eruption are herewith appended. These tracings extend over a period of 48 hours, namely, from 12 noon, August 27, to noon August 29. The waves shown thereon have been attributed to the Krakatoa explosion, although similar waves are to be found very frequently on records months and years before the explosion, and consequently it is doubtful whether these curves on August 27 and 28 can be said to be due to the eruption. The tracings are taken from Gibbon's self-recording barometer, in which an iron float rests on the mercury in the short arm of the siphon tube. This float is suspended from the short arm of a lever whose long arm carries a thin platinum plate adjusted between two platinum points. Contact with either of which will, by the electric current thus completed, carry up or down by mechanical action a frame carrying the pencils which record on chronograph barrels.

Occasionally, especially in winter, the records of one or more self-recording instruments are lost through the fault of the batteries, and for this reason special care should be exercised by the party having the batteries in charge. As long as the battery gives out during the day the trouble can be remedied very quickly, but unfortunately the trouble generally is in the night.

At present this room is engaged in preparing a catalogue containing drawings and descriptions of all meteorological instruments in possession of the service, but on account of the varied and complicated drawings which have to be made before an intelligent description of the instruments can be given, the progress made so far has been necessarily very slight, and I would earnestly recommend that one or two expert draughtsmen be employed to make the required drawings, or that photographs of the instruments be taken to enable this room to finish this part of the work assigned to it.

It having been found that barometer corrections had been arbitrarily changed, scales shifted, &c., upon the evidence of inspectors' barometers which were sometimes in error, steps were taken during the year to remedy this trouble. Faulty barometers were at once called in and replaced by carefully compared ones, and it is hoped that in three or four months each station will be in possession of two reliable barometers. To avoid the serious deterioration caused by rough handling, a new barometer box has been devised with glass plates on the back so arranged as to obviate this difficulty by fastening the barometer permanently and yet in such a manner as to facilitate readings. These boxes have been sent thus far only to a few stations. It is srtongly recommended that as rapidly as possible the interchange of boxes be accomplished.

One thousand and sixty instruments were carefully compared during the year; 633 were purchased by the purchasing and disbursing officer, 110 manufactured, and repaired in the machine shop of the office, and 1,091 instruments were returned from stations either broken or for repair. Of the 1,060 instruments compared 604 were issued to regular Signal Service stations; 233 to private parties, 121 to cotton-belt stations, 60 to the Louisiana State weather service.

I am, sir, very respectfully, your obedient servant,

THOMAS M. WOODRUFF,
First Lieutenant Fifth Infantry, Acting Signal Officer and Assistant.

SIGNAL OFFICE, WASHINGTON CITY,
August 18, 1884.

General W. B. HAZEN,
Chief Signal Officer, U. S. A.:

SIR: I have the honor to make the following report of the work done by me during the last year:

The verification and comparison of all thermometers with standards have been in my charge before being sent to stations; also the comparison of inspectors' barometers with standards before being sent out, and the intercomparison of standard barometers.

The office has not had, until recently, any standard thermometers for temperatures below + 32° F. During the year a standard has been established for low temperatures by very careful and repeated comparisons of two fine Baudin thermometers, Nos. 9704 and 9705, with the air thermometer from — 38° F. to + 32° F. The results show that the calibration agrees very well with the air thermometer. The greatest difference is 0°.4 F., and increases gradually from + 32° F. to the lowest point, — 38. The air thermometer reads higher than the mercurial below + 32° F. It is a singular circumstance that the mercurial thermometer is trustworthy down to the very verge of the freezing point of mercury.

For temperatures below — 38° F., and down to — 70° F., two minimum stem-graduated thermometers of ordinary form were selected as standards, Nos. 867 and 918, and compared with the air thermometer. These thermometers, Nos. 867 and 918, have been compared with the thermometers that were used in the Arctic regions by Lieutenants Ray and Greely.

Liquefied nitrous-oxide gas was used in the production of these very low temperatures. The thermometers to be compared were put in alcohol, in a tin pail having a capacity of about one half gallon. This was then put in another tin pail a little larger, and the nitrous oxide allowed to flow around the vessel containing the alcohol. The alcohol was first lowered in temperature to about 0° F. by putting it in glass flasks surrounded with salt and ice. One gallon of liquid nitrous oxide suffices, in this way, for cooling off one gallon of alcohol from about 0° F. to — 70° F.

For comparing the thermometers from — 38° F. to + 32° mixtures of muriatic acid and ice have been used. To get such low temperatures the acid is cooled down by salt and ice to — 4° F. and mixed with finely chipped ice or snow. This method is very unsatisfactory. Besides the labor of chipping ice and the trouble of handling acid the mixture does not give at first a uniform temperature in all its parts. It has to be very thoroughly stirred for a quarter of an hour before readings can be made.

At low temperatures the Signal Service minimum thermometers are found to be greatly in error. Almost uniformly they read about four degrees lower than the true temperature at — 40° F. Often, however, the errors are much greater than this, the thermometer reading as much as 6 and 8 degrees too low.

At the very low temperature, — 56° F., one thermometer was found to read 12 degrees too low. The mercurial thermometers are not so bad. For the most part, as low as — 35° F., they do not differ by more than 1 degree from the true temperature, some reading lower and others higher than the true temperature. Occasionally, however, one is found that is out as much as 3 degrees.

The reason for these differences is that the makers do not point the thermometers at low temperatures. The thermometers have been pointed at 32°, 52°, 72°, and 92°, and the graduation continued uniformly above 92° and below 32° down to — 40° without any further reference points. In the case of mercurial thermometers, unless the bore is perfectly uniform and like that above 32°, the differences from true temperature may become very great at the low temperatures.

The differences are even greater with alcohol thermometers. The maker causes the degrees to diminish gradually in size, going down the scale according to some law for the expansion of alcohol that has been determined by experiment with probably very pure specimens of alcohol. The alcohol that is put in the thermometers may not be of the same purity, and so have a different law of expansion.

STAT s record, **FORM NO. 102.**

Then to this uncertainty is added that due to irregularity of the bore as in the case of mercurial thermometers.

It would be a somewhat difficult matter for makers to point thermometers at very low temperatures, but the determination of their corrections at these points is very simple. Now, however, Mr. Green points thermometers made for the Signal Service at + 12° and − 8° F. and also at + 112°. The graduations are continued above and below these points. as they were previously above 92° and below 32°.

All thermometers of the Signal Service on stations are now being called in, and compared from at least − 28° to + 112°. For stations in the northwest, comparisons of minimum thermometers are being made much lower.

As no corrections have heretofore been used, for these thermometers, below 32° (except in a few isolated cases where the corrections were known at + 12°), the temperatures recorded in very cold weather have not been accurate. Indeed, it may be said that the minimum temperatures in the vicinity of — 40° F. are probably on the average too low by about 4° F.

When all thermometers have been compared, the back records of temperature can then be corrected if at any time in the future it should seem to be a matter of importance to have this done.

A series of comparisons of the air-thermometers has also been made with two mercurial thermometers every 5° C. from + 25° C. to + 55° C., to supplement a similar series of comparisons made at Baltimore in 1882.

All this work is being put together in shape for publication. When completed it will comprise calibrations of thermometers, tests of various pressures on bulbs of thermometers as affecting their readings, determinations of boiling points and fundamental distances on thermometers, comparisons with air-thermometers at low and high temperatures, agreement of the results with standard thermometers compared at the International Bureau of Weights and Measures, France, and at Kew, England, list of corrections of all Signal Service thermometers.

A careful series of comparisons was made during the year between six new Fuess barometers, Nos. 132, 141, 150, 152, 177, and 178, and Adie, Nos. 1526, 1555, and Green's "Standard, 1879." Three of the Fuess barometers have certificates of corrections as found by comparisons with the standard at the Central Physical Observatory, St. Petersburg.

The results of the comparisons show that the standard at St. Petersburg is 0.014 lower than the Kew standard as given by Adie, Nos. 1526 and 1555.

The Kew corrections of the Adie barometers are still retained as heretofore in determining the corrections of station and inspectors' barometers.

Very respectfully submitted.

T. RUSSELL,
Junior Professor Signal Service.

APPENDIX 7.

REPORT OF OFFICER IN CHARGE OF PUBLICATIONS DIVISION.

PUBLICATIONS DIVISION, SIGNAL OFFICE,
Washington, July 28, 1884.

To the CHIEF SIGNAL OFFICER OF THE ARMY:

SIR: I have the honor to submit the following report relative to the Publications Division for the fiscal year ending June 30, 1884.

The work of organization, which at the close of my last report had not been fully carried into operation, was completed early in the year and the division has been since running in such a manner as to fully prove the special advantages of the combination of the drafting, printing, and distributing rooms under a common division.

The following is a brief summary of the work performed during the year in the

DRAFTING-ROOM.

Maps reduced	760
Maps transferred to stone	552
Forms transferred to stone	25
Miscellaneous drawings	473
Maps backed and mounted	27
Maps examined when printed	302,927

Maps designed and constructed: Northwestern Alaska, Mercator's projection; United States, Lorgna's equal surface projection; Canada, Lorgna's equal surface projection; Atlantic Ocean, Lorgna's equal surface projection.

Two draftsmen have also entered data and drawn isobars and isotherms on 366 daily, 12 monthly mean international, and 24 monthly review charts. The work of this room has been materially increased, and a higher standard of perfection has undoubtedly been reached, as can be readily observed by an examination of specimens of the work and a comparison with that of preceding years.

In the printing-room the following is a synopsis of the printing and lithographing performed during the year:

Daily bulletin of international observations	193,208
Monthly summary and review of international meteorology	7,370
Monthly weather review	30,700
Farmers' bulletins	157,125
Professional papers	6,000
Signal Service notes	12,000
History of the service	10,000
Tornado circulars	100,875
General orders	70,850
Special orders	28,130
Signal Service instructions	22,850
Signal Service circulars	19,100
Post-office wrappers	2,579,500
Envelopes	558,650
Forms	282,366
Letters	6,850
Letter-heads	11,500
Miscellaneous	84,916

There have also been lithographed:

Base maps	370,253
Morning maps, 7 a. m	92,303
International charts, daily	206,787
Monthly weather-review charts	96,160
Letter-heads	49,980
Forms	73,260
Miscellaneous	53,830

In this subdivision there has also been decided improvement. While the quantity of work performed does not materially differ from that of last year, there has been marked improvement in its quality, especially in the lithograph charts, which will now compare very favorably with those of foreign bureaus and other organizations for meteorological purposes. This improvement is due in part to the superior work furnished by the drafting-room as well as to the selection and assignment of competent employés to duties in the printing-room, for which they are specially adapted. The printing-room is now in better condition than ever heretofore, and though there is still room for improvement, yet it is respectfully submitted that the character of the work done, the proportionate amount per man, and the prompt and workmanlike manner in which it is handled and executed will bear comparison (especially in view of limited facilities, old methods and appliances) with those of the ordinary printing-offices of the country.

In the distributing rooms the work has been materially increased. In this connection it must be remembered that numerous publications are printed for the division by the Public Printer, and that the distribution of these in addition to the regular publications at this office entails on this subdivision a large amount of clerical and other labor, such as folding, wrapping, mailing, &c. The records of the division contain about 2,000 addresses of regular correspondents and co-operators, including both domestic and foreign, to whom publications are furnished regularly. Besides these there is a large class of casual recipients selected from the numerous miscellaneous applicants, apparently steadily increasing, for special publications, to whom such copies are judiciously issued as may be available from time to time. Efforts have also been made with a view to the improvement of this subdivision. A different system of records has been devised which is soon to go into operation, and which it is believed will be more effective and better suited to the requirements of the division. The retained publications, the accumulations of past years, have been in part examined and rearranged in chronological order, as far as possible, with a view to future convenience in reference, and this branch of the work is to be continued as time and opportunity permit. Prompt attention has been paid to the distribution of all publications, and earnest efforts made to issue them as early as possible. The compilation of a new and important publication has been begun during the year. The work is entitled "The Daily Meteorological Record," and is intended to take the place of the "Daily Bulletin of Synopsis, Indications, and Facts," the last volume of which was issued in December, 1877. The text of the record is printed by the Public Printer, as, owing to the limited facilities for printing and the large quantity of current work, it cannot be done at this office at present; the maps therefor are lithographed here. A division, known as the "Meteorological Record Division," has been established at this office, specially charged with the preparation of this work for publication. To the officer in charge I leave its description, as it is more appropriately his province. A complete edition has not yet been published, but the work is progressing both in the draughting and lithographing rooms as rapidly as the issue of current work will permit. The text is also being printed by the Public Printer, and the publication of the edition for the first month is expected at an early date.

The total number of employés in the division at the close of the year is 46, consisting of 31 enlisted men and 15 civilians, classed as follows:

Clerks	7
Draughtsman in charge	1
Draughtsmen	4
Printer in charge	1
Printers	15
Lithographers	4
Proof-reader	1
Pressman	1
Pressboys	6
Stitchers and folders	2
Engineers	1
Messengers	1
Laborers	2
Total	46

S. M. MILLS,
Captain, Fifth Artillery, A. S. O., &c., in charge Publications Division.

APPENDIX 8.

OPERATION AND ORGANIZATION OF STATE WEATHER SERVICES.

SIGNAL OFFICE, WASHINGTON, D. C.,
September 8, 1884.

To the CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.:

SIR: I have the honor to submit the following report relative to the operations and organization of local State weather services, co-operating with the Signal Service. These services were first organized in compliance with your request, as presented to the officials of the several States in your circular issued in 1881. The organization of these services has continued from year to year with gratifying results, and the benefits derived from such services cannot well be overestimated, as they not only aid the Signal Service in the collection of climatic data, but offer well-organized channels for the rapid distribution of storm and frost warnings which may be issued by the Signal Service. There are now in operation local services in the following-named States:

Missouri, under direction of Prof. F. E. Nipher, Saint Louis; Indiana, under direction of Purdue University, La Fayette; Iowa, under direction of Prof. G. Hinrichs, Iowa City; New Jersey, under direction of Mr. W. E. Cass, Newark; Tennessee, under direction of Hon. A. J. McWhirter, Nashville; Illinois, under direction of Mr. S. D. Fisher, Springfield; Ohio, under direction of Prof. T. C. Mendenhall, Columbus; Nebraska, under direction of Prof. S. R. Thompson, Lincoln; Michigan, under direction of Dr. H. B. Baker, Lansing; Alabama, under direction of Prof. P. H. Mell, jr., Auburn; Louisiana, under direction of Mr. R. S. Day, New Orleans; Georgia, under direction of Prof. L. H. Charbonnier, Athens; Mississippi, under direction of Prof. R. B. Fulton, Oxford; Kansas, under direction of Prof. J. T. Lovewell, Topeka.

During the year services have been organized in Louisiana, Alabama, Mississippi, and Georgia, and efforts are now being made to extend these organizations to Minnesota, North Carolina, and Pennsylvania, with hope of success.

A want of funds has prevented this service from supplying the necessary instruments to State services, and it is recommended that provisions be made in the appropriation of the coming year for sufficient funds for this purpose, as by this means State services could be organized in a number of States and the present State services could be perfected and made more valuable.

The inclosed report of my visit to the several States indicates the greatest interest taken in this subject by State authorities and those interested in the safety of crops liable to be lost by frost.

The State services should receive assistance from the local State governments and be organized by legislative enactment. This is the case in Ohio and Iowa, and when the people of the several States recognize the value of these channels of distribution of information to the agricultural districts other States will follow the example of those named.

The State service of Nebraska held a convention of its observers at Lincoln on February 11, 1884, and the Signal Service was represented at that convention by Sergt. A. Pollok, who gave full explanations of the work of the Signal Service and descriptions of meteorological instruments and manner of using them. Sergeant Pollok's paper is of general interest, and therefore forms a part of this report.

The local service of Louisiana has adopted the cold-wave signal as a frost signal, and complete arrangements have been made by the chief of that service to display this signal at all his stations, when warning may be given by the Signal Service of the approach of freezing weather.

The service in Alabama has also adopted the cold-wave signal, and arrangements have been made with the railroads in Alabama to carry the information of approach of cold waves in that section.

The Alabama service has, in addition to the observations and monthly bulletins, a system of weather signals, covering the greater portion of the State, the weather forecasts being made by this service and telegraphed each day to the chief of that service, who distributes the forecasts by means of flags, indicating the character of the weather expected.

A meteorological society has been formed in New England, the work of which is somewhat similar to the work of the State services, and excellent results are anticipated from the monthly bulletins which have been promised from that organization.

As an evidence of the work performed by the local services, I submit the monthly summaries made up from the State bulletins for July, 1884.

I am, very respectfully, your obedient servant,

H. H. C. DUNWOODY,
First Lieutenant, Fourth Artillery, A. S. O. and Ass't.

The following is a list of inclosures:

1. Report of Lieutenant Dunwoody to the Chief Signal Officer on the efforts made to extend or organize local State weather services.
2. Lieutenant Dunwoody's remarks at the meeting of the Wisconsin State grange at Madison, December 13, 1883.
3. Extract from the Louisville Courier-Journal, December 20, 1883.
4. Extract from the Statesman, Austin, Tex., January 9, 1884.
5. Extract from the Gazette, Little Rock, Ark., January 13, 1884.
6. Letter of Hon. P. Dunn, M. C., published in the Little Rock Gazette.
7. Extract from the Times-Democrat, New Orleans, La., January 16, 1884.
8. Extract from the Daily Picayune, New Orleans, La., January 17, 1884.
9. Circular letter of Professor Mell, published in the Advertiser.
10. Extract from the World, Nashville, Tenn., February 1, 1884.
11. Extract from the State Journal, Lincoln, Nebr., February 12, 1884.
12. Remarks of Sergeant Pollok, at the convention of the Nebraska State weather observers at Lincoln.
13. Circular letter issued by the Indiana weather service, March 10, 1884.
14. Circular issued by the Louisiana weather service, April 27, 1884.
15. Extract from Sunday States, New Orleans, La., May 18, 1884.
16. Circular letter of Prof. W. W. Payne, Northfield, Minn.
17. Circular explaining the weather signals of the Alabama weather service.
18. Circular of the New England Meteorological Society.
19. Cold-wave circular issued by the Chief Signal Officer.
20. Frost and cold wave circular issued by the Louisiana State weather service.
21. Extract from the State weather service reports as published in the Monthly Weather Review for July, 1884.
22. Circular addressed to legislators and others by the chief of the Alabama State weather service.
23. Copy of bill establishing a meteorological bureau for the State of Ohio.

I.

WASHINGTON, D. C.,
March 31, 1884.

To the CHIEF SIGNAL OFFICER, U. S. A.,
Washington, D. C.:

SIR: I have the honor to report that in compliance with letter of instructions dated November 30, 1883, I visited the following points for the purpose of either extending or organizing local State weather services, to co-operate with the Signal Service in the collection and distribution of meteorological reports. I left this city on the 9th of December last and went direct to Chicago, where I made a general inspection of the meteorological station. I found the station in charge of Private E. P. Callaway, with Private P. M. Hutchinson as assistant, Sergeant Norrington being absent on an inspection tour. He was authorized to make inspection of railway bulletin stations if said inspection could be made without expense to the Signal Service.

With a view of learning what efforts were being made to extend the usefulness of this service in Chicago I called for the station record book, and was informed that the assistants knew nothing of the books of the office, and that neither had any knowledge of such a book being kept at that station.

The assistants were intelligent and fully competent to perform the usual duties required at stations, but neither assistant was looking forward to the service as a vocation, or expecting promotion for efficiency or fidelity in his work. They both hoped to find something more profitable to do and apparently were waiting for an opportunity to leave the Signal Service and did not appear to be satisfied. They knew scarcely anything about the board of trade. I took Private Callaway with me to the board of trade and called on the meteorological committee. The president of this committee said that he took much interest in the service, but he had not received the Weather Review for some months, and he supposed it had been discontinued.

I found the indications, farmer's bulletin, not posted in the frame, but lying on a shelf, white side up, and it had been used as pencil paper by some member of the board in calculating results of some transaction. My general impression was that there was an excellent field for Signal-Service work in the city, and that but little was being done to advance the interests of the service.

The assistants knew very little about the general work of the office, and complained that the sergeant kept them almost entirely in ignorance of such work, and they were only required certain duties. I judge that they must be correct from the inability of the assistant in charge to give information on many points. Neither of the assistants could tell where the sergeant resided.

I called on Mr. Stilwell to arrange for the display of the cold-wave signal from the tower of the Northwestern Depot in the city, and made arrangements for the display of the signal by the watchman of the building. The arrangement was completed after my return from Saint Paul, a few days later.

After completing these arrangements I visited Madison, Wis., calling upon the governor of the State and Professor Holden, of Washburn Observatory, who was much interested in the establishment of a State weather service in Wisconsin. I conferred with Professor Henry, of the Agricultural College, and arranged to address the State grange which was in session at the capitol building at the time of my visit.

I was presented to this body by Governor Rusk, and explained the efforts which were being made by the Chief Signal Officer to aid the farmers of the country in communicating information which the Signal Service collected. I gave an outline of the State service organizations, and explained to them the efforts which the service had made to warn them last September of the frost which injured the tobacco crop. I told them that on September 7 the Chief Signal Officer sent a message to Madison telling them of the approach of the frost on September 8 and 9, and that the message did not go out of the Madison telegraph office, owing to a want of proper organization. The governor at this point of my remarks stated to the grange that he could confirm what I had said relative to the dispatch, and that the Signal Service had given the forty-eight hours' notice of this frost which, if it had been properly distributed, would have saved the farmers in this vicinity thousands of dollars.

The grange passed a resolution directing that all possible aid be given to organize a State weather service.

Since my return I have written to Professor Holden suggesting that while we are waiting for instruments, it would be well to start the flag signals similar to those proposed in Indiana, and I hope by this means to attract much attention to the Signal-Service work, and in this way secure a permanent organization of the State service.

I next visited Prof. W. W. Payne, at Northfield, Minn., and found him in charge of astronomy and mathematics at the Carleton College. He is a competent, enthusiastic scientist, and well qualified to perform the duties of chief of State weather service, and with a supply of instruments he would be able to do excellent work in Minnesota. He gives time to a number of railroads and acknowledges the aid which he has received in this work from the Chief Signal Officer. The college is in a flourishing condition, and the local station, under charge of Professor Payne and one of the students of the college, is well located, and records are properly kept. Professor Payne states that he would use all the influence of the college and his personal influence to secure the appropriation for instruments necessary to organize the State service.

Upon my return I visited the station at Saint Paul in charge of Sergeant Lyons, who is a faithful and competent man and was anxious to have a full inspection of his station made, as it was his first station. He stated that his barometer needed cleaning, but as I had no barometer I did not consider it safe to undertake this work. He also states that the work and hours at that station required an assistant and wished that I would so state to the Chief Signal Officer. As to the work, I presume it is greater than at Springfield, Ill., but the hours are nearly the same, and I had no complaint from Sergeant Jennings, although at the latter station I observed that the sergeant was much confined. I think it quite confining for men in the Mississippi Valley to be in charge of stations without an assistant, although there are many business men not so well paid who have more hours of duty.

After leaving Saint Paul I returned to Chicago and completed arrangements for the display of the cold-wave signals at the Northwestern Depot in that city. The legislature of Kentucky was to meet on the 2d of January, and I therefore concluded it would be best to visit Frankfort before that date, and not wait until I had visited all other parties named in the order; so I went to Frankfort from Chicago, stopping at La Fayette, Ind., on the 16th, to confer with Mr. W. H. Ragan, chief of the State weather service of Indiana. I found the central station of the service well located, with the exception of the thermometer-shelter, which should have been ventilated, and this was noted by Mr. Ragan. This service was removed from Indianapolis at the close of the last fiscal year, owing to failure of the legislature to appropriate funds for use of State offices.

I called upon the president of the college, Dr. Smart, and presented fully the plan for increasing the usefulness of the Indiana State weather service by adding railway signals, the college to be the distributing point of special indications sent to the State.

He expressed much interest in this plan, and stated that he would take immediate action to secure the signals for the two lines of railroad crossing the State, operated by the Louisville, New Albany and Chicago Railroad, provided I could secure the co-operation of the railroad in this matter.

I visited Louisville on the 18th and called upon the railway officials, who approved of the plan, and I so informed Mr. Ragan at La Fayette. I visited the signal station at Louisville, and the members of the meteorological committee. Found the station in good order; both Sergeant Dey and Assistant Curtis were well spoken of by those with whom their business brought them in contact. I do not like the window shelter at this station, and am confident that it is affected by the temperature of the building and room. I met the proprietor of the Courier-Journal and explained the object of my visit, and he directed a special correspondent to call at my hotel, by appointment, and kindly published a very favorable article on the subject, copy of which is herewith.

I visited Frankfort, calling first on Mr. Went, who is the associate to the commissioner of education of the State, and the voluntary Signal Service observer at that point. He presented me to the governor, Proctor Knott, to whom I explained the general plan of State weather services, and he wished me to meet the new commissioner of agriculture, Mr. Johnson; also stating that Mr. Johnson could arrange to take charge of the work. I met Mr. Johnson, and also Mr. Proctor, state geologist of Kentucky, and gave them an outline of the proposed plan of work, and, later, sent Mr. Went a draft of what I thought necessary to secure a State law to give this matter a preliminary organization.

I left Frankfort on the 19th and went to Springfield via Saint Louis, going through the new office in the latter city, which had been moved to the Government building. I found this office in excellent condition, and the business was conducted in a satisfactory manner.

I think it probable that the location of the rain-gauge on the roof of this building will not secure proper records of rainfall and certainly not of snowfall; and at stations where abnormal air currents are formed, owing to high chimneys, mansard roofs, and irregular surfaces, I should recommend that the rain-gauge be placed at some open space as near as practicable to the office. For the purpose of securing a good location for a voluntary station near Saint Louis, I accompanied Senator MacGrath to the College of the Christian Brothers, which is located 5 miles west of the city hall on elevated ground; and excellent opportunity is now offered to not only secure a valuable series of observations, but, at the same time, to extend the knowledge of meteorology to the large class of students who attend this college. The college has since been designated as a voluntary station, and instruments ordered.

I called on Mr. S. D. Fisher, at the state-house in Springfield, on the 22d, and found him anxiously awaiting my arrival, as he is looking forward to the increase of the meteorological feature of his work. Mr. Fisher has utilized meteorological data more than any other man in the agricultural departments of States, by publishing in his monthly crop reports the actual and average of season and of monthly temperature and rainfall for the past six years, and he is desirous of extending the system of reports, which can be readily done if instruments are furnished. Mr. Fisher also stated that he would urge the Senators in Congress to look after the Signal-Service appropriation for instruments. The system of flag signals has also been proposed to Mr. Fisher for Illinois.

After leaving Springfield on the 23d, I visited my home at Fairfield, Iowa, remaining there until the evening of the 25th, when I left Fairfield for Topeka, Kans., at which point I met Professor Lovewell, in charge of the Kansas State weather service. Professor Lovewell has recently been appointed meteorologist to the State Board of Agriculture, and will doubtless have many opportunities to increase the Kansas State weather service during the year. He has ten rain-gauges and a necessary supply of blanks, but no thermometers. With these instruments he would be able to secure observers in almost every county of the State. Transportation to the western part of the State has been furnished by the Union Pacific Railroad, upon the request of the Chief Signal Officer to the general manager at Kansas City.

Professor Lovewell informed me of a certain circular, which had been issued by some one connected with the Signal Service, urging those to whom it was sent to use their influence against the Signal Service. I could not secure a copy of this circular, but think I shall yet be able to do so, when I shall submit it to the Chief Signal Officer. I visited Kansas City on the 27th for the purpose of looking after the above circular, and also to confer with Mr. Case, postmaster, relative to the establishment of a cold-wave signal station at that point, and made the necessary arrangements for two signals, one at the post-office and one at the Union Depot.

On the 28th I left Kansas City for Texas, going via El Paso, and taking six days leave of absence to attend to some private business. I inspected the station at El Paso, Sergeant O'Dowd in charge, corrected the location of rain-gauges, so that each would have the same exposure, examined the station books and found them well kept and up to date. After securing a letter of introduction to the governor of Texas and other prominent citizens of Austin, I left El Paso for the last-named place on the 6th, and arrived at Austin on the 8th. Professor Brown, of the State University, was much interested in the work of a Texas State weather service, and introduced me to the professors of the university for the purpose of enabling me to fully explain the plan of work.

I called on Governor Ireland, and secured an interview with the editor of the Statesman, who published a very excellent article in his paper of the 9th. I will add that Texas is one of the most important States for the organization of a weather service, and much benefit may be derived from the warnings which the Signal Service can give and thus have properly distributed. I am in doubt, after visiting the State capital and seeing the incomplete condition of the university, whether this is the best point for the central station. It might be well to place it in Galveston and have the sergeant at that point aid in organizing it.

I arrived at Little Rock on the 12th, and inspected the station under charge of Sergeant Simons, who deserves credit for the manner in which he conducts the business of his office and his high standing in the community. He is a member of the staff of the State Medical College, and it is this branch of the State college that will assume charge of a State weather service as soon as instruments can be furnished. I visited the Cotton Exchange of Little Rock, and explained to the members the object of my visit, and they immediately drafted and passed a strong resolution urging the members of Congress to aid in this work by providing the necessary funds. I found a general disposition to favor the Signal Service and its work and a readiness to acknowledge the usefulness of its reports.

From Little Rock I went to New Orleans, where I arrived on the 16th; visited the signal office and addressed the sugar convention on the evening of that day. This convention, after hearing of the object of the Chief Signal Officer in organizing a State service in Louisiana, appointed a committee to meet committees from the Cotton Exchange, Sugar Exchange, and Produce Exchange at 2 o'clock, in the Cotton Exchange building, on the following day, to make the necessary arrangements to organize a State service without waiting for State or Congressional aid. I met the committee per engagement, and it was agreed that each of the organizations named should give the necessary amount to make up $1,500, the amount required to establish this service. I have learned since that the whole amount of money has been appropriated and that the organization is in progress. The commissioner of agriculture of the State was to take charge of it until the State made an organization, but I have not yet learned what arrangement has been made as to the head of the State service.

I next visited Montgomery, calling on the governor of Alabama, and receiving from him letters to the commissioner of agriculture, Judge Betts, who was at the State college at Auburn. I called on Judge Betts, who referred me to Prof. P. H. Mell, jr., professor of chemistry at the State Agricultural College, as the proper person to take charge of this work. I found Professor Mell much pleased with the plan, and he has taken much interest in his work, having organized his State service so far as to be able to commence operations on April 1, proximo.

The accompanying papers contain a published letter from Professor Mell to the citizens of Alabama, which will exhibit the energy with which he has entered upon his duties.

I next called on Mr. Henderson, commissioner of agriculture of Georgia, who has taken some interest in the meteorological work of the State in connection with the agricultural reports. I found that while something might be done by having the service under the commissioner of agriculture, more might be accomplished by placing the State service at some college in the State, and therefore took advantage of Professor Mell's recommendation of Professor Charbonnier, at Athens, Ga. The Chief Signal Officer has recently received a letter from Professor Charbonnier, stating that he would undertake the establishment of a State service if furnished with the cotton reports and instruments, and I think it would be well to place the State service at Athens, if such could be done without offense to the commissioner of agriculture, and I think it can be.

I visited Nashville, Tenn., for the purpose of conferring with Hon. A. J. McWhirter, chief of the State weather service of Tennessee, but found that he was absent in Washington, having gone there chiefly in the interests of his State service. I inspected the signal office under Sergeant Jesunofsky. The cold-wave flag was up when I entered the city, and I heard many commendatory remarks as to the value of the Signal Service by citizens.

I left Nashville on the 21st for Louisville, when I called again upon the officials of the Louisville, New Albany and Chicago Railroad relative to train signals. The superintendent of the road informed me that he would be pleased to try the signals, and wished to obtain models or samples of the signals so that he could tell just how to place them on the cars. I so informed Mr. Ragan.

The inclosed clippings from newspapers contain articles published in every place which I visited during the trip.

I left Louisville on the 23d and arrived at this city on the 24th.

I am, very respectfully, your obedient servant,

H. H. C. DUNWOODY,
First Lieutenant, Fourth Artillery, A. S. O. and Asst.

II.

MADISON, WIS., *December* 13, 1883.

At the meeting of the Wisconsin State Grange, Lieut. H. H. C. Dunwoody, of the Chief Signal Office, Washington, was introduced, and made a speech relative to establishing a State weather service in Wisconsin, such as has already been established in Indiana, Illinois, Nebraska, Kansas, Iowa, Ohio, and other States. He said that he visited Wisconsin in behalf of the Government, and that the plan of the service was to have a volunteer in each county of the State take daily observations of the weather, and at the end of each month transmit the result to a central station, to be located at the university. Here, from all the reports, a bulletin would be prepared, showing the rainfall of the month just passed, and this could be issued to the people of the State through the medium of the press. From a perusal of this farmers could form a pretty correct opinion as to the prospect of the yield to be expected, knowing whether the rainfall had been too light, just right, or too excessive—which would be valuable to them. Then, again, if such a scheme was introduced, there would be a ready means of distributing predictions as to weather furnished from Washington. The Government's motive was entirely unselfish and was only to aid the farmers, though indirectly the Government would be benefited in securing detailed statements of the weather from all the counties of the State. It was the intention of the Government to start the scheme, furnish the necessary implements, &c., and then leave the legislatures of the various States to relieve it as soon as possible. The speaker desired the farmers to consider the matter, and when the proper time arrived to use their influence on the legislature.

Professor Whitney, of Michigan, was called upon, and said that he thought the farmers of the country ought to be aided by the Government as much as commerce, and that he believed the weather-service scheme suggested to be a good one. To the patrons he desired to say that the present year had been the most successful in their history.

III.

[Courier-Journal, Louisville, Ky., December 20, 1883.]

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STATE WEATHER SERVICES.

To perfect the Signal Service system, to extend its influences, to observe more accurately, and to report and publish more promptly and widely all atmospheric changes are certainly objects which should enlist the attention of our legislators and secure the support of public-spirited citizens.

The movement of most importance just now contemplates the establishing of State bureaus throughout the country, which will observe most carefully local climatic conditions, make these observations matters of record, report them to the chief, and thus, in connection with the observations of the Signal Service, do much to extend the benefits of that department and to advance the whole science of meteorology.

The expense of such an organization is light. The idea is to make the service voluntary, under the charge of a director appointed by the governor. In this State this work might be assigned to the commissioner of agriculture or some other officer of the State, and a clerk appointed to facilitate business. In each county there should be a volunteer observer, who would make a daily record and a monthly report. It would be desirable to have all the instruments used of uniform pattern, submitted to standard tests, in order to give full, positive, and comparative value to the records.

These instruments should include one maximum and minimum thermometer, one dew-point or other hygrometer and rain-gauge, which would cost probably $15. The director at the capital would issue each month a review of the weather, which would be furnished to each observer and also given to the press.

In this manner it will be possible to accumulate in a short time such an array of facts, such trustworthy information, that weather forecasts will not be all guesses, but it will be possible, at least a little while in advance, to foretell tornadoes, frosts, and similar disasters, especially those of a local character. Over the territory between the Rocky Mountains and the Atlantic there are about ninety stations; necessarily they are far apart, and local atmospheric disturbances of an important character often escape notice. It would not be so had each State a well-organized weather bureau, such as we have described.

Some States have already entered on the work with most gratifying results. The complete success which is anticipated will only come when each State does its part. It should not be said of Kentucky that we have neglected a matter of such importance to the entire community, especially to the farmers. The next legislature should, we think, make the necessary appropriation, authorize the governor to make the appointments, and to establish this bureau on the proper basis.

IV.

[The Statesman, Austin, Tex., January 9, 1884.]

WEATHER SERVICE FOR STATES.

Lieut. H. H. C. Dunwoody, of the United States Army, is in the city, consulting with our State officers, the members of the University faculty, and other persons, in regard to the establishment of a weather service for the State, to act in conjunction with the United States Weather Bureau. No better time could have been selected to present this question for general consideration. Here is the legislature in session, the stockmen in council, and the land agents of the State in consultation, while leading men are here from every part of the State. At present the Federal Government has, between the Rocky Mountains and the Atlantic Ocean, somewhere in the neighborhood of a hundred Signal Service stations, from which are sent to Washington three daily meteorological observations, from which forecasts of the weather are made. These stations are necessarily at great distances from each other, and to make the system more complete it is proposed that each State have an independent weather service for the purpose of gathering and utilizing local climatic data. Through so complete a system the people of the entire country would in time become conversant with physical conditions of all portions of the country, and they would be guided thereby. In tornado seasons these observations would be invaluable as warnings, and in the winter season we would know in Texas when a norther was approaching days beforehand. It is suggested that State weather service be wholly voluntary, under the direction and superintendence of a director, appointed by the governor, or it might be made part of the duties of some already existing officer. The secretary of the board of education in this State might be empowered to look after the service. The observer in each county might be a volunteer, or the service might be imposed upon some county officer. In specifications proposed for the State bureaus it is submitted that the instruments used should be of uniform patterns, carefully tested before use by comparison with known standards, and should include at least one maximum and one minimum thermometer, one dew-point or other hygrometer, and rain-gauge, all of which, with a supply of blanks and stamped envelopes for one year, it is stated, need not cost more than $15 per station. The director should be fully impressed with the importance of the work and should issue each month a "review of the weather," as obtained from the State observations; this review to be furnished to each county paper for publication and to each observer within ten days after the close of the month. Some of the States have already established services, which are sustained, as they should be, at public expense, and Texas should not hesitate to enact at the earliest day a measure of this sort. Iowa appropriates only $1,000 to carry into full effect the provisions of its service. The magnitude of our State territory would make the service in Texas more expensive than in any other State, but this would be nothing when its benefits are considered. No State should hesitate to do her part towards making the service complete. Of course it is not expected the measure may be taken up by the legislature now in session for specific purposes, but at the next regular session a bill creating a State weather service should be formulated and adopted.

V.

[The Gazette, Little Rock, Ark., January 13, 1884.]

STATE WEATHER—A SIGNAL OFFICER IN THE CITY ORGANIZING A STATE SERVICE—A PLAN THAT WILL BE OF INCALCULABLE BENEFIT TO OUR PEOPLE—WHAT IS PROPOSED.

Among the arrivals in the city yesterday was Lieut. H. H. C. Dunwoody, of the Signal Service Department of the United States Army. In company with Sergt. W. U. Simons, signal officer at Little Rock, he called at the Gazette office yesterday, and explained the nature of his business to the frigid weather reporter. He desires to extend the weather service of the State to act in conjunction with the United States Weather Bureau. There is not a thinking man in Arkansas who does not realize the great value of a systematic dissemination of weather statistics and warnings, such as the Signal Service is now furnishing the whole country. It is one of the marvels of the age, and the agricultural portion of the population are rapidly learning that it is almost indispensable to them. The Government has at present about one hundred Signal Service stations between the Rocky Mountains and the Atlantic Ocean, each of which sends three daily meteorological observations to Washington, from which forecasts of the weather are made. The stations are necessarily distant from each other, and General Hazen, Chief Signal Officer, has inaugurated a new scheme to make the system more complete. This plan is to establish independent weather service in each State, to gather and utilize local climatic data. It has been established in several States, with observers in every county; and the new plan of General Hazen is meeting with great approval and hearty co-operation from every State in which it has been introduced.

By this plan the people become conversant with the physical conditions of every locality in the State, and will in time be guided thereby. In the tornado season the results of observations in temperature and humidity will be invaluable, as they will enable a correct forecast to be made. The approach of cold waves and changes of the weather will be announced in advance, and to the agriculturist of the State it will be a great blessing.

The railroads of the State will be used to carry weather signals on the trains, and express a willingness to do everything in their power, by way of carrying signals and sending messages, that will increase the efficiency of the service.

Lieutenant Dunwoody, in explaining the organization of this State bureau, said that the service may be wholly volunteer and under the charge of a director appointed by the governor, or it may be made a part of the duties of some officer now authorized by law, such as the superintendent of public instruction, the president of some State college, &c. The observer in each county may be a volunteer, or it may be made the duty of some county officer to make a daily record and a monthly report. Observations should be taken, if possible, in State, county, and municipal offices and institutions. The instruments will include one maximum and minimum thermometer, one dew-point or other hygrometer, and rain-gauge, all which, with a supply of blanks and stamped envelopes for one year, need not cost more than $15, and which the Government will furnish. The director of the State service should issue a compact monthly review each month, to be furnished the State papers within ten days of the close of the month. Systems similar to this are now in operation in Missouri, Iowa, Ohio, Tennessee, Kansas, Illinois, Indiana and other States. In some the service is sustained at the expense of the State. In Arkansas we have not yet any provision by our legislature for such work, and the system will be volunteer. Lieutenant Dunwoody was in consultation with many of our leading citizens yesterday, and with the meteorological committee of the Cotton Exchange. He has not yet decided whom to place in charge of the inauguration of the work. He desires, if possible, to have the State director at Little Rock, which is centrally located, and was also in consultation with the medical department of the Arkansas Industrial University, yesterday, in regard to the matter. No State, and especially Arkansas, should be lukewarm in aiding this enterprise, and doing all in her power to perfect the weather service. There is no doubt but that the legislature, at its next session, will create some sort of a State bureau, and follow the lead of her sister States.

Professor Mendenhall, of the Ohio State University, chief of the service in that State, addressed the Ohio legislature, at their request, last year on the subject. A few of the points made by him are peculiarly appropriate and explanatory of the benefits to be derived. He said that the Weather Bureau of the United States is recognized for its efficiency by the whole world. The Signal Corps was the inception of the Weather Department and was utilized. Ninety per cent. of its predictions are true. Millions and millions of dollars are annually saved by the work of the Department. Our country is so large that the data are few, and observers in every county are to be secured. Referring to the Illinois report, he said there was corn famine in

Southern Illinois last year which was predicted some time before. The idea was to place the information before producers, so that they may know what effect may be expected from weather statistics obtained.

The result of his address was, that a bill establishing a weather service was passed by the legislature of Ohio.

Further information as to the results of Lieutenant Dunwoody's mission will be given to-morrow.

VI.

[The Gazette, Little Rock, Ark.]

CONGRESSMAN DUNN AIDING THE INCREASE OF STATE WEATHER SERVICE.

Lieutenant Dunwoody, of the United States Signal Service, was in our city a few days ago, it will be remembered, trying to arrange for an increase in our State weather service. The matter is of great importance to our State, and was heartily indorsed by all our leading citizens, resolutions to that effect being passed by the Little Rock Cotton and Produce Exchange. In this connection a letter received by Sheriff John G. Fletcher yesterday from Congressman Dunn will be read with interest:

HOUSE OF REPRESENTATIVES, UNITED STATES,
Washington, D. C., January 18, 1884.

Hon. JOHN G. FLETCHER,
President Cotton and Produce Exchange, Little Rock, Ark.:

DEAR SIR: I have just received, through the secretary of the Little Rock Cotton and Produce Exchange, the resolution passed by that body at its meeting on the 12th of January, instant, favoring an increase of the number of reports of the United States Signal Service in the cotton-growing States, &c.

Fully concurring in the views expressed in said resolution, I have caused it to be referred to the Committee on Appropriations, and will take the pains to go in person before that committee and urge a liberal and sufficient appropriation to secure the objects sought. That service is measured by the appropriations made from year to year.

Very sincerely, yours, &c.,

POINDEXTER DUNN.

VII.

[The Times-Democrat, New Orleans, January 16, 1884.]

A STATE WEATHER BUREAU.

Lieut. H. H. C. Dunwoody, of the United States Signal Service, is now in this city for the purpose of arranging some plan for the improvement of our weather service. He has been visiting the Western and Southwestern States under the instructions of General Hazen, who is desirous of improving the Bureau over which he presides, and of making it more complete by securing a system of co-operation with weather bureaus in each of the States.

Lieutenant Dunwoody's mission, therefore, is to secure the organization of a special State signal service here. He has been very successful so far, and wherever he has been his suggestions have been accepted. It is not generally known that thorough and effective weather bureaus now exist in Kansas, Missouri, Illinois, Indiana, Ohio, Michigan, and Tennessee; that Wisconsin, Georgia, Arkansas, and Minnesota are preparing to act, while several other States have taken the matter under consideration.

It is scarcely necessary to show here of what great value it is to all interests, not only to the farmers, but to the merchants and others as well, to fully understand the weather; and nowhere is it more important than here in Louisiana. Many of our crops are particularly tender and easily affected by atmospheric changes. They need constant watching and protection. At the request of our sugar planters the Signal Service recently made extra arrangements for warning us of an approaching freeze—a warning worth thousands and hundreds of thousands of dollars. Anything that will improve this service, therefore, should be encouraged by us.

Mr. Dunwoody yesterday visited the Chamber of Commerce and the cotton, sugar, and produce exchanges, with this end in view. Committees of these bodies will be appointed to confer with him regarding the adoption of some plan for raising the funds to equip and furnish a State weather bureau, to secure the needed instruments, &c. The expense will be very slight indeed, and the money can readily be raised here, only about $600 being needed. After the bureau is once organized there are no running expenses whatever.

The plan pursued elsewhere, and it is the one that will probably be adopted here, is to secure some State officer to act as the head of the State weather bureau. The officer generally selected for this purpose is the commissioner of agriculture. If he is unable to act, this duty is given to some college or public institution. The head of this bureau then selects a number of sub-officers in all the important points in the State—in Louisiana there would be about forty needed—who report to him daily or monthly the condition of the weather. The chief gives, at the end of the month, in a succinct and condensed form, a weather report, which is furnished to the United States Signal Service, and to the press for publication. In this way a meteorological record is kept, and the United States officers are assisted in making their prognostications. The State officers also serve to distribute the weather probability reports through the country districts, and thus give the farmers more timely warning than now.

Lieutenant Dunwoody also proposes to establish here, if possible, the system of rain and frost signals in force in Ohio and some of the Western States. Flags bearing symbols, foretelling a frost or rain, warmer or colder weather, that is approaching, are attached to the cars, and thus every farmer in the country through which these trains go is warned of any meteorological change that will affect him.

It is to be hoped that our merchants and planters will join with the United States Signal Service in improving our facilities for obtaining a better knowledge of the weather and an improved service. It will be of inestimable benefit to every interest—mercantile and agricultural.

VIII.

[The Daily Picayune, New Orleans, La., January 17, 1884.]

A STATE SIGNAL SERVICE.—LIEUTENANT DUNWOODY DESCRIBES THE SYSTEM WHICH IT IS PROPOSED TO ESTABLISH.—ORGANIZATION OF A COMMITTEE TO RAISE NECESSARY FUNDS.

A meeting was held yesterday afternoon in the Board room of the Cotton Exchange for the purpose of affording Lieut. H. H. C. Dunwoody, of the United States Signal Service, an opportunity to explain the details of the special State service it is proposed to organize.

There were present Messrs. McLean, Day, and Dobbins, of the meteorological committee of the Cotton Exchange; Messrs. Allen, Roman, and Brodnax, of the Produce Exchange; Messrs. Bush, Lombard, and Henry McCall, representing the sugar-planters' convention. Mr. Herrman, the signal officer at this point, accompanied Mr. Dunwoody.

A committee had also been appointed by the Sugar Exchange, but owing to a misapprehension as to the hour fixed for the conference, which was 1 o'clock, they were not present.

By request, Mr. Dunwoody gave a general description of the service it is proposed to establish. His remarks were substantially as follows:

The object of our meeting is to consult, and to ascertain some method of organizing what is termed a local or State weather service to collect meteorological reports, and to utilize them in the different enterprises in which you are interested. We have in the Signal Service, as you know, about 120 stations distributed over the United States, but at wide intervals. They are sufficient for the indication of storms, but not numerous enough to furnish the necessary information in regard to the conditions which affect crops. The rainfall in Louisiana may be large enough to determine the success of the crops, while insufficient in Alabama and Florida, or there may be a drought in Louisiana and Texas, and abundance of rain on the Atlantic coast. We wish to ascertain the exact conditions, and it is proposed to fill in the intervals between the regular meteorological stations by means of local observations taken voluntarily under the direction of local organizations, as the Cotton Exchange, Chamber of Commerce, or, as in some States, the commissioner of agriculture. He receives from the various stations, daily, weekly, or monthly, reports by mail as may be desirable. The Signal Bureau furnishes the necessary blanks, forms, &c. The first cost of the equipment of a station is about $15. We will equip these stations from the Signal Service fund if a sufficient appropriation can be obtained from Congress. We have asked for it, but there is no certainty of receiving it. The importance of this service in furnishing valuable information induces the Chief Signal Officer (General Hazen) to act in this matter and organize this service independent of the appropriation we have asked for. The local service has been established in ten States, and is likely to be organized in six or seven more.

I have visited Kentucky, Wisconsin, Arkansas, Texas, and propose going to Alabama, Georgia, and other States. After reaching New Orleans I concluded it would be to the advantage of the agricultural interests if this service could be organized under the direction of the commercial bodies in this city. There should be 40 or 50 stations in Louisiana, distributed throughout the cotton and sugar districts. The stations would furnish daily, weekly, or monthly reports by postal card in accordance with forms I will show you, and the reports could be tabulated here and given to the public for the benefit of trade. These stations, being located within telegraphic limits, will serve for points of distribution for the bulletins which we may send, giving information of approaching danger from frost. It is possible that the whole State may be covered, and the warning communicated within six or eight hours after the bulletin leaves Washington.

Under the present arrangement, telegrams designed to give warning of frost may reach only one or two points, while it should reach all the planters. It is also proposed to have the railroad trains carry signals visible by day or night, so that when the train passes through a threatened district displaying the cautionary signal the people in the vicinity will know what to expect. Frosts injurious to the sugar crop may not occur every year, but some years when they do come a great deal of loss might be avoided if the proper warning were given.

If the Signal Bureau gets the appropriation which has been asked for, the local service can be organized without outside aid. The expenses will consist of the employment of one clerk to superintend the clerical labor of tabulating and sending out reports, and the first cost of $600 for instruments. One thousand dollars per annum would insure a service of 40 stations, which would be sufficient for Louisiana. There are only two men in the Signal Service here, and they could not perform this extra work in addition to their other duties.

To insure the stability of the special service, it would be well to make it a State organization. The meteorological bureau of Ohio is established by act of the legislature, and gets an appropriation of $2,000 per annum. The reports are published monthly.

The service in Iowa is also organized under State law. In Missouri there is an excellent service under direction of Washington College.

Lieutenant Dunwoody furnished further information in response to questions from gentlemen present.

On motion of Mr. Day, Col. Louis Bush was called to the chair and a discussion took place on the subject of ways and means to carry Mr. Dunwoody's suggestions into practical effect.

Mr. Day moved that the chair appoint a committee to take the matter in charge, and to call upon the exchanges represented—as the Cotton Exchange, Produce Exchange, and Sugar Exchange—for an appropriation of $500 each to organize the system.

The motion was adopted, and Messrs. Robert S. Day, Columbus H. Allen, and H. J. Roman appointed on the committee.

The committee was also requested to confer with Mr. W. H. Harris, State commissioner of agriculture and immigration, and ascertain if he would take charge of the bureau.

The thanks of the committee were tendered to Mr. Dunwoody, and the assemblage adjourned subject to call.

Lieutenant Dunwoody left for Montgomery yesterday evening. He has been twelve years connected with the Signal Service, to which he was assigned from the Fourth Artillery.

IX.

ALABAMA WEATHER SERVICE.

AUBURN, ALA., *January* 31, 1884.

EDITOR ADVERTISER: General Hazen, the Chief Signal Officer, has requested me to organize a State weather service for Alabama, similar to the ones now in operation in Tennessee, Ohio, Missouri, Iowa, and Kansas. In entering upon the work, I consider it well to speak of the importance of such a system to every one throughout the State, and request that you will publish these few lines for the benefit of your readers.

All trades and professions are more or less affected by the changes of the weather; and the study of the laws governing the circulation of the atmosphere with its attendant phenomena is becoming more and more interesting to every man and woman in the length and breadth of the land. In a circular issued by the signal officer more than a year since to the different governors of the States, the object of these State systems was strongly brought out in the following terse language:

"By the organic law relating to meteorological work, Congress contemplated a weather system that shall be as useful as possible to the whole United States. Experience, however, has shown that in many questions relating to agriculture and other interests more minute details are needed, such as can only be obtained by having at least one report from each county, and this extension of the work must, for the present, devolve upon the individual States. The object of a State weather service should be to observe and utilize every feature of the weather that affects the prosperity of the inhabitants of the State as to crops, health, life, &c., omitting, perhaps, only those few items already provided for by the General Government at Washington, such as general storm predictions.

"The State service is, therefore, essentially a plan for gathering and utilizing local climatic data, and eventually it will define precisely the localities most favorable or unfavorable to special crops, diseases, &c. The chief of the State service should be in such communication with the Chief Signal Officer of the Army that he may at any time receive from Washington, and rapidly disseminate throughout his State, any information of importance, such as predictions of frosts, tornadoes, floods, &c.

"Observations should be taken, if possible, at all State, county, and municipal offices and institutions, such as jails, asylums, hospitals, libraries, toll-gate keepers, surgeons, colleges and high schools, water-works, &c.

"The director should be fully impressed with the importance of the work, and should issue each month a review of the weather as obtained from State observations, this review to be furnished to each county paper for publication and to each observer within ten days after the close of the month."

I shall endeavor to carry out the intention of the signal officer as expressed in this circular. It is my wish to begin with at least twenty stations located in the most advantageous manner wherever the railroad and telegraph will permit of rapid communication. As soon as I can obtain the necessary instruments I will place an observer in each county of the State. For the present, the observers will have to be volunteers, until sufficient funds are placed in the hands of the director to compensate these workers. The expense of the station to the observer will only be the consumption of five minutes' time at each observation three times per day. All stationery will be furnished by the central office.

At the close of each month bulletins will be issued through the office of the Commissioner of Agriculture, copies of which will be distributed throughout the State.

I ask for a hearty co-operation on the part of the papers, and I trust that all the periodicals in every county in the State will give me a place in their columns for spreading broadcast the valuable data obtained from the State weather service.

P. H. MELL, JR.,
Director State Weather Service.

X.

[The World, Nashville, February 1, 1884.]

OUR STATE WEATHER SERVICE.

To the World:

In the Atlanta Constitution of January 22 was printed the following conversation, which took place between one of its reporters and Lieutenant Dunwoody, of the Signal Service, who is endeavoring to work up an interest in the extension of the predictions of the Signal Service, so that they will be available to farmers everywhere soon after they are issued, and also endeavoring to organize State weather services to co-operate with the Signal Corps. He said to the reporter:

"I am here to see if a plan can be agreed upon for extending your State weather service."

"What is the outlook?"

"Well, I have visited the State agricultural bureau, and I find that Judge Henderson and Captain Redding have organized what may be called the nucleus of a weather service. With a sufficient appropriation to pay for the services of one man, and to purchase the necessary instruments, you can have a weather service here that will be of incalculable value. With observations and reports forwarded from every county, the weather office here will be enabled to publish a monthly report to accompany the crop report now published by the Department. You will see the importance of this to farmers. The approach of cold waves and changes of the weather will be announced, and if the railroads show a willingness to carry weather signals the service can be made very thorough."

"You speak of observations in every county?"

"Yes, I mean volunteer observations; or the legislature could make it the duty of some county officer to make a daily record and monthly report. Such a system is calculated to give the people a meteorological education. The good results of a continuous record of atmospheric changes cannot be exaggerated, because there is not an industry in the country that would not derive some benefit from it."

"How are the signals used?"

"Flags of different colors, denoting cold waves, wet weather, storms, &c., are, under this system, carried by railway trains and hoisted on the court-houses of every county seat."

"Have you met with any encouragement here?"

"Yes; I am well satisfied with the prospect. From what I have heard I feel confident that your legislature will take the necessary steps to make your weather service complete."

In endeavoring to organize State weather services, Lieutenant Dunwoody is trying to fill a long-felt need. The stations of the Signal Service are hundreds of miles apart, and between them numberless meteorological phenomena occur, not unseen, but unrecorded, and are thus totally lost to science. If we are ever to solve the problem of the weather we must have its changes recorded as completely as possible, and the experience of the past teaches us that it will not be long before law and order will begin to appear. But to do this, we must have more stations. Between Memphis and Nashville there might be an area of exceedingly heavy rainfall, while the rainfall at both stations was light; or there might be a belt of destructive thunderstorms, which were scarcely felt at either station. Suppose the yield of a certain crop had been very heavy in the central part of the State. A searcher after the cause might look at the records of the Memphis and Nashville stations, and finding the rainfall comparatively light, conclude that a light rainfall was favorable to the growth of the crop, when the reverse was true. Then, would we know more about weather changes and crop production? Would we know which portion of the State is most favorable for certain crops? Would we know whether crops raised in other States could be favorably raised in this, without always having to spend time and money and probably several years in practical experiments to find out? Would we know more about the connection between the weather and the growth and decline of those lately so much talked of bacteria of disease?

To do this we must have a net-work of stations all over our State. Thanks to the kindness of General Hazen, and the good sense and energy of our Agricultural Commissioner, and his assistant, Major Bate, a good beginning has been made. Fifty thermometers and rain-gauges have been distributed to some of the sons and daughters of our State, who nobly give their time without pay to the great work. But the observers are as yet poorly equipped; they have no shelter to protect their instruments, nor all the necessary instruments, and, being unpaid, how can we expect them to stay at home to take observations when their business demands they should be away? Thus, in a great many instances, that accuracy and completeness of its records upon which almost the whole of its scientific value rests is lost. To bring the service to perfection the legislature must add the pecuniary assistance, and let us hope that it will. To what valuable results it would lead it is impossible to say, but I firmly believe that its utility to the public would expand with every year of its age. Perhaps it would be well to review some of the results that have already been obtained in other countries.

"Sir Rawson Rawson, after an elaborate investigation of the rainfall of Barbadoes, West Indies, proves not only a distant connection between the fall of rain and the total sugar product of the island, but also that it is possible beforehand to predict within narrow limits what the total yield of the season will be.

"In Lyons and Paris a system of rain-gauge stations has been organized at the head of the water-sheds; daily reports are sent to the central office, and so great is the experience gained by constant practice that no flood ever reaches either city until long after its advent has been announced, and usually the height predicted is realized within a few inches. It would probably be within the truth to say that the hydrological commission of Lyons and the Seine have saved to France tens of thousands of pounds."—Lecture by Prof. G. J. Symons, F. R. S.

There is no reason why this could not be done in Tennessee. Enough then is in full view to warrant the complete organization of our weather service, and unless our farmers, river men, and others dependent on the weather, see to it that the legislature at its next session make an appropriation for this purpose, it seems to me they must be blind to their own interest, and let us hope that the legislature through false ideas of economy will not deny the thousand or two necessary to the endeavor to save tens of thousands wasted to the State.

H. H. CLAYTON, Jr.

XI.

[State Journal, Lincoln, Nebr., February 12, 1884.]

THE WEATHER WISE.—THEY MEET IN CONVENTION AT THE UNIVERSITY.—SOME INTERESTING PAPERS AND PROFITABLE DISCUSSIONS.

The Convention of the State Weather Observers met at room 17 of the university, in pursuance of the call of Prof. S. R. Thompson, of the agricultural college. A fair number of gentlemen attended, and organized by the election of Mr. Alexander Pollok, observer Signal Service, U. S. A., at Omaha, as president, and Prof. G. D. Swezey as secretary. Professors Nicholson and Barber were present during part of the evening and participated actively in the discussions.

Observer Pollok read a lengthy paper on "Meteorological Instruments," which he accompanied by numerous illustrations on the blackboard, following it with an interesting description of the manner in which observations are recorded, transmitted, and enciphered in the Government department, and closing with remarks appreciative of the efforts of Professor Thompson for the improvement of the State weather service, which remarks were loudly applauded. Following the reading of this paper, came a running discussion upon the various topics touched, and more especially upon the method of best exposing rain gauges.

Professor Swezey next read an excellent treatise on the proper exposure of the thermometer, which elicited queries and remarks relating to this subject, and brought out several points of general interest. A debate upon the meteorology of Nebraska in the various phases ensued, among which tornadoes, gales, and storms were prominently mentioned. From the tenor of the meeting it was evident that the State weather service of Nebraska is a beneficial institution that should, as it could, be improved by the co-operation of the legislature. Nothing is more important to the farmers of this State than its meteorology as affecting the soil and climate, and the good work deserves to be encouraged by every means.

The Convention of State Weather Observers adjourned at 10 p. m. to meet again at the same place this morning at 8.30 a. m.

XII.

OMAHA, NEBR., *March* 14, 1884.

To the CHIEF SIGNAL OFFICER, U. S. ARMY,
Washington, D. C.

SIR: I have the honor to report, at this late day, that I attended the convention of the Nebraska State Weather Observers, in accordance with instructions from the office of the Chief Signal Officer. The meeting was not well attended, but from the interest evinced better results in the future may safely be expected. I was elected president of the convention in compliment, no doubt, to the Signal Service.

Inclosed herewith I submit transcript of a paper on "Meteorological Instruments," read by me before the convention.

I am, sir, very respectfully, your obedient servant,

ALEXANDER POLLOK,
Sergeant Signal Corps, U. S. A.

METEOROLOGICAL INSTRUMENTS.

A paper read before the Nebraska State Weather Service Convention at Lincoln, Nebr., February 11, 1884, *by Sergt. Alexander Pollok, Signal Corps, U. S. A.*

MR. PRESIDENT: It was my purpose when I accepted the invitation of Professor Thompson to read a paper on meteorology before this convention to select as my theme "The work of the Signal Service in Nebraska," but, on suggestion of Lieut. H. H. C. Dunwoody, assistant to General Hazen, whose efforts in behalf of State weather services and the popularization of our invaluable, because most practical, science cannot be too highly appreciated, I have partly modified my subject, and purpose to treat here more particularly on the method of taking observations correctly. For, remember, upon the accuracy of our reports depends the value of our individual labor, and upon the value of our aggregate labor the reliability of the total result. Take, for instance, the barometer. It is an instrument which measures the height of a column of mercury supported by the pressure of the atmosphere. From this height the weight of the atmosphere is ascertained. The construction of it is simple. Take a glass tube, about 3 feet in length, hermetically sealed at one end and open at the other; fill it with quicksilver, and then, closing the open end of the tube with the finger, invert the tube and immerse the lower end in a cup filled with mercury. On removing the finger the liquid will fall only a moderate distance, and will be maintained at an elevation of about 30 inches above the level of the liquid in the cup. The fluid is upheld in the tube by the air outside of it pressing on the mercury in the bowl; and since the one thus balances the other, it is evident that the mercurial column will serve as an accurate indicator of the varying pressure of the air. It requires, therefore, only a graduated scale attached to the glass tube to record the height of the atmosphere—that is, the reading of the barometer—at any time. Of course, great care must be taken to expel both air and moisture from the tube and fill it with pure mercury in order to obtain the greatest perfection possible. Having thus constructed a barometer, it is necessary next to read it correctly. No broker weighs his precious metal with greater precision than the observer must employ in the recording of this instrument, nor is it necessary that he should. Not one-thousandth of an inch—aye, ten-thousandth sometimes—should escape the observer's eye, for the slightest deviation may impair the calculations based at the central office upon their report, defining the area of low and high pressure, and hence the movement and progress of storms, which may be the means of saving or losing life and property beyond estimate.

Do you now understand the importance of taking your observations with scrupulous care?

First of all, be punctual. Therein lies the unequaled advantage of the military system of the Signal Service, that it trains each man to be at his post of duty at the exact minute required—by day or night; fine weather or foul; in peace or war; in safety or danger; at isolated stations or populous cities; in a salubrious or plague-stricken country—always amenable to orders; always subject to Army discipline.

Granted, then, that you heed this first elementary rule, and be always promptly at your observatory, you next take the barometer out of the box, in which it should always be kept for safety and cleanliness, and read the attached thermometer on its side, quickly though carefully, before the different temperature of the room can affect it. Note the degrees in a book which you must carry habitually with you, wherein to record all readings as soon as they are made.

The object of reading the attached thermometer, as stated, is this: The mercury in the barometer tube, which is intended to record the height of the column of air resting upon the cistern, will be affected more or less by the temperature prevailing about it; and to ascertain, therefore, how much of the rise or fall of the barometer is due entirely to the pressure of the atmosphere you must add or deduct, according as the attached thermometer is above or below 32° F. (which is the uniform temperature determined on for purposes of comparison), whatever expansion or contraction is owing to other causes, as in this instance, to temperature.

This done, tap the barrel of the barometer firmly, to free the mercury from the sides of the tube; then adjust, by means of a screw, the surface of the ivory point which is the zero of the scale. Be careful that the contact be a mere touch and no more. If the barometer has a sliding scale, bring the lower edges of the vernier to the column of mercury, as I show by this illustration, so they exactly coincide with the top of the meniscus or curvature of the column without cutting off any of the light of the angles. A vernier is an instrument for reading off the graduated scale of the barometer true to the one-hundredth or one-thousandth part of an inch. It consists of a piece similar to the scale of a barometer, along which it slides. It will be observed from the drawing on the blackboard that ten divisions of the vernier are exactly equal to eleven of the scale, that is, to eleven-tenths of an inch. Hence each division of the vernier is equal to a tenth of an inch, together with the tenth of a tenth, or a hundredth, or to ten hundredths and one-hundredth—that is, to eleven hundredths of an inch. Similarly, two divisions are equal to twenty-two hundredths of an inch, which, expressed as a decimal fraction, is 0.22 inch; three divisions of the vernier, 0.33 inch, &c. In reading the barometer, you first note the whole inches, then, continuing on the scale upwards, the tenths, and finally take the point at which a division of the scale and a division of the vernier lie in or the nearest to the same straight line, and thus obtain the hundredths.

Most every barometer has a slight error, due to imperfect construction, and this, as by careful comparison with a standard instrument may be determined, is either added to or deducted from the reading of the barometer, after correction for temperature has been applied according as it causes a higher or lower state of the mercury.

A barometer often used, because of its convenient size, is the aneroid. The principle on which this depends is the varying pressure of the atmosphere upon an elastic metallic chamber partially exhausted of its air, and so constructed that by a system of levers a motion is given to an index hand which moves upon a dial. Of course this kind of instrument is not implicitly reliable, but by frequent comparison with a mercurial barometer good results may be obtained.

In the Signal Service the instrument read next to the barometer is the anemometer, and following this the exposed thermometer; but I will explain the latter first as being of greater importance and in more general use.

There stands in Omaha in front of a popular cigar store an Indian, for whom the good people of that city manifest the tenderest solicitude. Every morning, especially in extreme cold weather, the passers-by stop and note carefully the temperature of the savage, which is denoted by a thermometer suspended from his neck. Now, I claim that this Indian, wooden man though he is, causes a great deal of mischief.

His temperature differs from that of the air by some 8 or 10 degrees; and yet the people insist upon consulting it as the standard authority of the weather for the city. Now, I maintain that this is a gross libel upon the climate of Nebraska, since it gives outsiders the impression that in summer it is unbearably hot and in winter correspondingly cold here, when the official records of the Signal Service show an entirely different condition. Now, you ask what is the trouble? Simply this: The thermometer hanging around the Indian's neck, however sensitively it may respond to the varying temperature of the dummy, is not a just indicator of the temperature of the air around it. Expose your thermometer in the open air, where the circulation is unobstructed. Let it face the north at some elevation from the ground and some distance from the wall or other object liable to reflect heat, and keep it invariably in the shade; or, in other words, do precisely the reverse of what the red man in the wilderness of Omaha is doing.

The thermometer, as is scarcely necessary to say here, consists of a small glass tube, having a bulb at one end and partially filled with mercury or spirit of wine. In constructing this instrument the mercury should be pure and dry, and boiled, so as to expel the air. The bore of the tube should be equal, so far as possible, throughout. As it is impossible, however, to obtain a glass tube perfectly cylindrical, it is necessary to graduate the scale by actual test, each degree to correspond with the other, not in distance, but in volume of mercury. Two variable temperatures are fixed by which the graduation of the scale is made. On Fahrenheit, which is the instrument used in this country, these fixed points are 32 and 212 degrees; that is the temperature at which ice melts and water boils, respectively.

To determine the greatest heat or greatest cold experienced during a day, self-registering thermometers are employed. The maximum thermometer used in the Signal Service is an instrument of the ordinary make, except that a depression in the lower end of the tube divides the column of mercury. The mercury of this detached column expands as the temperature rises, while the other end only retreats towards the bulb when the temperature declines. Hence the end of the detached column denotes the maximum temperature attained during the time since last set. By bringing the instrument to a vertical position, with the bulb downward, the detached portion descends nearly into contact with the remainder of the column. A speck of air admitted into the maximum thermometer may serve the same purpose as the depression mentioned.

To determine the minimum temperature a spirit thermometer is used in which is immersed a steel index. As the temperature falls the spirit drags the index with it, but when the spirit expands, that is, the temperature rises, it freely passes the index and leaves it lying at the lowest point to which it has been dragged, thus recording the greatest cold. This thermometer is set by bringing the index close up to the top of the spirit by raising the bulb end of the instrument.

The apparatus for testing the temperature of the water consists of a small thermometer inclosed in a cylindrical metallic case. A portion of the case is hinged so as to be swung open when it is desired to read the thermometer. A valve at the bottom of the case admits the water as it sinks to the bottom of the river, and falling into place when the case is drawn up prevents the water from escaping.

It is of great importance for the proper prediction of the weather to determine the amount of moisture in the air. Various methods have been devised for this purpose, but in accuracy and simplicity the wet bulb surpasses every other. This instrument is a common thermometer, having its bulb covered with a piece of muslin, and kept constantly moistened with water by means of wicking in communication with a cupful of rain-water. The muslin should be changed when covered with dust or other impurities. When the air is dry evaporation proceeds rapidly from the muslin, and on account of the heat lost by evaporation the wet bulb indicates a lower temperature than the exposed thermometer. But when the air is damp evaporation is slower, and the difference between the two becomes smaller; and when the air is completely saturated evaporation ceases, and the instruments show the same reading as the exposed thermometer, near which—about 1 foot apart—it should be exposed. Tables for the deduction of the dew point and the relative humidity of the air are furnished by the Chief Signal Officer, and are indispensable to every practical meteorologist. The determination of the dew point may be of great value to the horticulturist in indicating the approach of low temperature or frost, since it shows the point near which the descent of the temperature of the air during the night will be arrested. I am sorry that I cannot enter more fully into the explanation of this subject without imposing upon my time and your patience too much.

I made mention of the anemometer as being read by the observer of the Signal Service immediately following the barometer. The instrument used is the Robinson anemometer, consisting of four equal metallic cups in the form of hemispheres, attached to two arms, which cross each other at right angles, and are so supported as to turn freely about a vertical axis. The base of each hemispherical cup is in a vertical position; and since the action of the wind is upon the concave side of one of these cups greater than its action upon the convex side, a moderate breeze is sufficient to maintain the arms in continuous motion. Dr. Robinson has proven that the center of each hemisphere moves with one-third the velocity of the wind, and thus this instrument measures directly the velocity of the wind.

An electrical contrivance, by means of which the velocity of the wind so obtained is directly recorded upon a sheet divided into hours, part hours, and minutes, kept inside of the office, has been introduced by the Signal Service, which record is not only convenient and accurate, but continuous, and serves often in the determination of damage suits in courts besides its intended scientific purpose.

While mentioning this invention let me say that the Signal Service has added vastly to the stock of new and useful meteorological instruments, for which the most advanced nations have made handsome acknowledgments, although our own public, misled by roaring demagogues or deceived by chronic malcontents, is slower in its appreciation.

In the observation of the weather the clouds form not the least important element. It is necessary to observe not only the kind, which, for brevity, we will divide here into fibrous upper clouds, called cirrus, and layers of lower clouds, called stratus, besides the mountainous clouds often observed in the sky during warm weather, and the different subdivisions formed of a combination of either, as cirro-cumulus, cirro-stratus, cumulo-stratus, but also the direction from and the velocity with which they move. Fog is a cloud resting upon the earth. Any cloud from which rain falls is called nimbus.

Great stress should be laid upon the accurate measurement of the rainfall. We in Nebraska, who have heard so much discussion on this subject in connection with the fertility of our soil, realize fully its great importance. Expose your gauge, which consists of a cylindrical tube and a funnel, where it is free from all obstructions and eddies. This is not so easy as may appear at first thought, and great care should be exercised therewith. Insert the measuring stick into the cylinder and note the amount of water indicated thereon. Then reduce the amount so obtained according to the proportion of the tube to the area of the funnel. In the Signal Service this proportion is as ten to one, so that a rainfall of 1 inch collected by the funnel is equal to 0.1 inch in the tube. When the precipitation is in snow, take the cylinder of the rain-gauge, invert it and plunge it vertically into the level snow until it reaches either the ground or the upper surface of the snow that fell before the last measurement was made, dig away the surrounding snow, slip a sheet of tin under the lower end of the cylinder, lift it up and put the cylinder, open end upward, in a warm place, where the snow will quickly melt, then measure the depth of the water. The actual and not the relative depth of water in the cylinder will be recorded. Sleet or hail, when falling with rain, is measured as the latter, and like snow when falling with snow.

Other instruments could be named, but the foregoing are sufficient for all practical purposes when carefully and punctually noted.

All first-class stations in the Signal Service take three daily telegraphic observations, two local observations, and as many special observations as may be prescribed. At each of these observations the barometer is corrected for temperature and instrumental error, as mentioned in the outset, and also reduced to sea level. The latter is done for the purpose of readier comparison. To illustrate, take Lincoln and Pike's Peak for example. Say there is a perfect equality of air pressure between the two places; the column of air resting upon the base of the barometer cistern here will be much higher, and hence the pressure of it much greater, as the elevation of your city is less than that of Pike's Peak. Hence the barometer at Lincoln may read 30 inches, and only about 18 inches at the other point, while at the same level both would be perfectly alike. For this reason a neutral point, so to say, has been chosen to which all corrections are adapted, and the sea level is, of course, the most natural that suggested itself, being everywhere the same. Should, after this reduction is made, the barometer at Lincoln read 30 inches and only 18 inches at Pike's Peak, then you may conclude that the world is coming to an end, for such diversity, if it were possible, would indicate a commotion in the atmosphere utterly unprecedented. By this I mean to show once more the significance of high and low pressure, but more particularly the convenience of reducing all barometric readings to the same level. The difference, then, speaks for itself.

When a telegraphic observation is completed the data are translated into cipher, a transaction, by the way, perfected almost to a fine art, and transmitted thence by special wire to Washington. At the chief office draftsmen are ready at the appointed time to chart the isobars, isotherms, dew points, clouds, &c., upon separate maps, from which the officer in charge deduces the indications for the following day as you find them in the daily press.

From the same cipher, or as many of them as any station receives, are prepared the daily bulletins, three times a day, as you find them posted in all large cities where signal offices are located. Those who study these bulletins regularly know how to appreciate their value. I doubt whether there is ever a general storm of any magnitude that the Chief Signal Officer fails to predict, partially at least. A great deal of abuse has been heaped on the present management of the department for alleged inaccuracies, when in truth and fact the percentage of verifications was never greater than at present. I believe it was 88 for 1883. You do not suppose that General Hazen attends in person to the preparation of the indications. To do that would require his presence mornings, noons, and nights, week-days and holidays, and in all eternity, to say nothing of the neglect in such cases of his vast administrative duties. The indications are prepared by officers who devote years of patient study to this particular branch of meteorological science and gain in proficiency in the ratio of their experience. Let this serve you as a sample of the insane criticism bestowed upon the service by persons who for the most part could not tell a barometer from a crowbar or an anemometer from a windmill.

If, nevertheless, the Signal Service is susceptible to further improvement, it is not because the Chief Signal Officer does not employ the means at his command to the best advantage, but because these means are not sufficient to cover the immense field deserving of cultivation. And what a field it is! When all along the lakes and sea-coast the flying storm-signals give warning to the mariners to keep in port, or when perhaps a tempest-tossed ship is sighted by a signal man on lonesome watch, who, by means of torch, or flag, or telegraph, summons the needed rescue, thus saving mayhap in one single night more than the whole appropriation for the Signal Corps amounts to, if, indeed, the value of human life, not to speak of the worth of the cargo, may be expressed in figures; when all this and more I say is done by the service, you never hear of it. It is treated as a matter of course. But if, perchance, once in a lifetime, a vessel be wrecked through the caprice of a local storm, the blame is forthwith attached where it does not belong—to this department.

Some day when the people of this country shall awake to a proper realization of their best interests, they will clamor, not as the croakers do for retrenchment, but for a liberal extension of the Signal Service, to include warnings of destructive storms, frosts, floods, &c., in the interior of the country in the manner now employed along the sea-coast. Already has General Hazen taken the initiatory steps for such a consummation, and if members of Congress were fully aware of the needs of their constituents they would not hesitate long to supply the sinews of war against the fiercest enemy of the husbandman and shipper, the hostile elements. It behooves not my position, perhaps, to utter these bold sentiments, but as I propose to cast my lot in another sphere of usefulness some early day, I can indulge in more freedom of speech than I otherwise would.

It may interest you to know that at the same moment that you step into your observatory to take one of your tri-daily readings prescribed, a thousand or more co-workers, distributed all over the northern hemisphere, and most of them eminent scientists, repair to the same work for precisely the same object. There is not a prominent observatory, college, station, or barracks anywhere in Algeria or Japan, in India or Siberia, not to speak of the more civilized countries of Europe, where regular observations, by voluntary contributors like yourselves, are not taken. There is not a ship in the British, Swedish, Spanish or American navy, whether cruising in the Arctic, middle, or equatorial zones, that is not instructed to take simultaneous meteorological observations. And the Chief Signal Office in Washington is the one great receptacle into which the whole mass of data flows and where the vast collection is computed, sifted, and prepared for practical and scientific deduction. Speak of the work of the United States Signal Service! There is not a government short of barbarism on the face of this planet that would not cheerfully adopt our system and give in exchange for it ten times the amount Congress stintingly appropriates for the same, had it but natural advantages and other facilities for its operation such as this great and glorious country enjoys.

Let it be a source of just gratification to you to be part of this useful and beneficial system, and thank Professor Thompson for his tireless efforts, in the face of constant discouragements, to secure to Nebraska the greatest share of blessings to be derived therefrom.

XIII.

PURDUE UNIVERSITY.

OFFICE OF PRESIDENT,
La Fayette, Ind., March 10, 1884.

To school-teachers, superintendents, county and city officers:

The Signal Service of the United States has been found to be of incalculable benefit to the maritime interests of the country. It is believed that it can be made of as much benefit to its agricultural interests. Timely information of the coming of a cold wave, for example, spread among the farmers of this State, would without doubt save many thousands of dollars' worth of farm products annually. I am reliably informed that a crop worth $50,000 was lost in a certain county last fall, which might have been saved if the farmers had taken advantage of the weather report published in a certain daily paper in that county. The daily press is doing a valuable service by publishing weather indications.

The Signal Service of the United States is seeking additional means of disseminating information among the people. A scheme has been devised by means of which signals showing weather indications can be placed upon railroad trains. The management of the State weather service is negotiating with some of the railroads of the State with a view of placing these signals upon their lines. But these signals can be seen only when the train is passing, and hence must be observed at a given time, or not at all. We have devised another scheme, which has received the approval of the Signal Service Bureau at Washington, and which can be made to reach thousands of people which the railroad scheme will not reach. It is to furnish signal flags to any teacher, superintendent of schools, county or city officers, who will agree to run them up on a flagstaff. The commissioners of every county in the State would confer a great benefit on the farmers of their immediate vicinity if they would cause these signals to be run up on their court-houses. School trustees, superintendents, and teachers of schools in charge of school-houses, not in the immediate neighborhood of court-houses, would confer a like benefit by raising the signals upon their respective buildings.

There are two things necessary for the successful execution of this scheme. First, to procure the necessary information concerning the weather indications each morning; and, secondly, to procure and use the necessary signals. If the railroad signal scheme becomes general in the State, the necessary information can be obtained at any railroad telegraph office, or from any railroad train.

The necessary signal flags will be furnished by William H. Ragan, director of the State weather service, Purdue University, La Fayette, Ind., at cost. This will be $2 per set for ordinary cloth, and $3.50 per set for bunting.

The signal flags are very simple, and can be properly displayed by any one, and it will take but five minutes a day to set them. If properly elevated, they can be seen at a distance of half a mile or more, and can be readily interpreted. They will indicate six things:

1. Higher temperature.
2. Lower temperature.
3. Stationary temperature.
4. General rain or snow.
5. Clear or fair weather.
6. Local rain or snow.

Full printed directions for the use of these signals will accompany each set sent. Orders will be filled in the order of their reception.

The signals for this State will be based upon special daily information received from the Signal Service Bureau at Washington, and upon a special daily forecast of the weather for the State of Indiana. Arrangements have been made with the railroads, and towns along each road can secure information each morning at their railroad station.

J. H. SMART, *President.*

WILLIAM H. RAGAN,
Director Indiana Weather Service.

XIV.

LOUISIANA STATE WEATHER SERVICE.

[Circular.]

NEW ORLEANS, LA., *April* 27, 1884.

SIR: Through the munificence of the bodies represented by the members of this committee we are enabled to establish a State volunteer weather service in Louisiana, in co-operation with the United States Signal Service. The benefits to be derived from this institution are manifest, as the data collected will be of immense importance hereafter in weather prognostications, and in forming opinions of the effect of weather on crops. It will also arrange for the rapid and complete distribution of frost warnings throughout the sugar region. It is our purpose to establish a station in your section, and to the end that we may obtain observers who will be thoroughly efficient we would ask you to recommend to us any person of your acquaintance who would probably volunteer and who would be reliable. The duties are not onerous. They consist of observations two or three times daily of the temperature, the condition of the atmosphere, the rainfall, and all incidental phenomena, a record of which is to be kept in a book furnished for that purpose, and weekly or monthly returns of the data to be made to us upon the blanks furnished.

The instruments furnished will be of Government construction and bought from them by us for the State weather service.

To any close observer of nature, or to one who is fond of collecting scientific data, the position of volunteer reporter will be one which will afford much pleasure.

The reports from all the stations will be embodied in a monthly report, in pamphlet form, which will be distributed throughout the State for the benefit of planters and farmers.

Begging you to give us the benefit of your advice in regard to an observer near you at your earliest convenience,

Yours, truly,
ROBERT S. DAY,
Secretary.

Committee.—Col. Louis Bush, of Bush & Levert, representing sugar planters' convention; John T. Brodnax, representing New Orleans Produce Exchange; John Barkley, of Barkley, Thomson & Co., representing New Orleans Sugar Exchange; Robert S. Day, of Gidiere, Day & Co., representing New Orleans Cotton Exchange.

XV.

[Sunday States, New Orleans, La., May 18, 1884.]

THE STATE WEATHER BUREAU.—AN INSIGHT INTO THE SYSTEM AND ITS INCALCULABLE RESULTS.

The joint committee, consisting of Col. Louis Bush, of the planters' convention; J. T. Brodnax, of the Produce Exchange; John Barkley, of the Sugar Exchange, and Robert S. Day, of the Cotton Exchange, have issued their first report of the Louisiana State weather service.

Some months ago the movement was inaugurated by the subscription of $1,500 from the commercial bodies represented, but the sum subscribed was exhausted in the purchase of instruments. They propose to establish stations all over the State, from which to receive regular observations and data, and again to utilize every train leaving the city to carry signals of approaching frost or storms, by displaying on them flags in the day time and lanterns at night, so that all the people along the lines of railway can, in the critical period of crops, receive due warning of changes in the weather from 24 to 48 hours ahead, and thus be able to make due preparations to save their crops from frost. The regular stations to be established by June 1 will furnish data which in two or three years will be a basis of predictions of seasons for all the sections of the State. Time has proved the correctness of such predictions, and all needed is to start the service to furnish the needed data. In addition to the trains carrying these signals, on receipt of such warning, each station will hoist a frost or storm flag or lantern.

The joint committee expect the legislature of Louisiana, as other States have done, to make an appropriation of at least $2,000 to further and aid the enterprise.

An instance of the value of this service is recorded in the State of Wisconsin. Last year Lieutenant Dunwoody, of the Signal Service, sent a warning dispatch to Madison, Wis., predicting frost in 24 or 48 hours.

The State had no bureau, and no way to disseminate the news. The telegram lay unnoticed in the office at Madison, Wis., and the result was that the unexpected frost in 48 hours had ruined the tobacco crop of the entire State; while, had it been heralded to the planters, there would have been ample time to gather and protect the crops, whose loss amounted to $1,500,000. With this service established in Louisiana, telegrams of warnings could be sent to every planting section of the State, and the benefit derived from the knowledge that a frost would come in even 24 hours would much more than compensate for the small outlay, as no one in the service will be salaried, except the clerk compiling the monthly reports and sending the predictions.

The following States have adopted or are adopting this system, namely: Ohio, Missouri, Tennessee, Alabama, Mississippi, and Kansas. The United States, which will be a large beneficiary from the establishment of these State services in the way of minute data, will always aid and foster the enterprise.

The following table from the June report is of interest, as it contains the records of frosts from 1870 to 1884:

Year.	First frost.	Last frost.
1870-'71	Dec. 20, 1870	Jan. 15, 1871
1871-'72	Dec. 1, 1871	Feb. 3, 1872
1872-'73	Nov. 30, 1872	Jan. 19, 1873
1873-'74	Nov. 20, 1873	Jan. 30, 1874
1874-'75	Nov. 26, 1874	Feb. 10, 1875
1875-'76	Dec. 13, 1875	Feb. 16, 1876
1876-'77	Nov. 21, 1876	Feb. 18, 1877
1877-'78	Nov. 11, 1877	Jan. 25, 1878
1878-'79	Nov. 1, 1878	Feb. 11, 1879
1879-'80	Nov. 20, 1879	Feb. 27, 1880
1880-'81	Nov. 16, 1880	Apr. 2, 1881
1881-'82	Nov. 24, 1881	Feb. 5, 1882
1882-'83	Nov. 30, 1882	Jan. 23, 1883
1883-'84	Dec. 16, 1883	Feb. 15, 1884

XVI.

STATE WEATHER SERVICE.

CARLETON COLLEGE OBSERVATORY,
Northfield, Minn., August 12, 1884.

DEAR SIR: Gen. W. B. Hazen, Chief Signal Officer, Washington, D. C., has recently addressed an important communication to the director of the observatory at Carleton College, Northfield, in regard to organizing a State weather service for Minnesota. In that letter he says:

"It is my purpose to establish local State services in the several States, which will aid the Signal Service in collecting meteorological data, and at the same time afford a well-organized system of stations, which will enable the Signal Service to distribute the information which may be collected to the best advantage; or, in other words, I hope by the co-operation of the State services and the Signal Service to make the latter more valuable to the people of the country."

The plan of the State service is to have a central State office and a State director, and at least one voluntary observer in each county, who will keep a record of temperature and rainfall, and report the same to the central office of the State, at such times and in such ways as the Chief Signal Officer at Washington shall plan for or request.

County observers wishing to make continuous records of wind force, humidity, and the barometer, will be aided in all possible ways, both by the State and the Government service; for such observations are locally of equal value to those of temperature and rainfall.

The Stare director will supply from the chief officer at Washington the instruments necessary for all the observations spoken of above at greatly reduced cost from catalogue prices. These instruments will be compared with the Government standards at the Chief Signal Office, and a memorandum of errors of all will be furnished to each local observer, so that a uniform system of observations is secured for the weather service of the entire country.

The central State office will also furnish, free of charge, to all local stations, the necessary blanks, instructions, monthly weather review, reports of the State weather service, and all other useful information communicated by the Chief Signal Officer at Washington for that purpose.

Attention is asked to the following advantages of a State weather service:

1. It will bring the benefits of the signal service of the United States into every county of Minnesota participating in the State service.
2. It will be the means of soon securing better predictions of weather changes and storms, so much needed in the Northwest.
3. It will soon prepare Minnesota for a system of storm signals displayed from railway trains that will be widely beneficial to agricultural interests.
4. It will give to every county the Government standards for temperature, rainfall, wind-velocity, humidity, &c., which are sources of useful public information.
5. It will put within reach of local agricultural societies means of accurate observations which, in the course of years, must be valuable to any locality in the study and adaptation of cereals.
6. It will bring the science and methods of the national signal service within the reach of the principal high-schools of the State, offering teachers and pupils alike excellent opportunities to study a wide range of the application of science to foster and protect agricultural industry.
7. For about $15 the instruments for temperature and rainfall can be secured.

To take the observations requires but little time daily, and the exercise is especially agreeable to those that are interested in natural science. Any person so disposed will probably not find it difficult to raise the necessary means to buy all instruments wanted for a complete station at the county seat of each county, for various interests are to be served, and, in all probability, liberal people who naturally have interest in useful science will cheerfully contribute for such an enterprise.

Instruments necessary for observations desired by the State service and the Signal Service of the United States:

	Cost.
Thermometer:	
External	$2 50
Maximum registering	5 00
Minimum registering	4 00
Rain-gauge, copper, iron overflow	1 25
Measuring stick	25
Total	13 00

Very truly, yours,

W. W. PAYNE, *Director*.

XVII.

ALABAMA WEATHER SERVICE. EXPLANATION OF SIGNALS FOR INDICATING CHANGES OF THE WEATHER AND CONDITIONS OF TEMPERATURE.

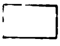
[Please post in a conspicuous place.]

At an early hour each morning these signals will be raised simultaneously at al telegraph stations throughout the State. The predictions will be furnished the director each day by the Chief Signal Officer at Washington, and these predictions will be immediately telegraphed from Auburn to the superintendents of the various railways, who will promptly distribute the warnings along their several lines.

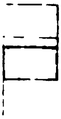
The upper flags will always designate the approach of rain or fair weather, while the lower flags will always refer to the changes of temperature.

The flags must be so placed on the staff as not to permit of their becoming entangled during a calm.

The following are the possible combinations:

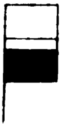


Fair weather and lower temperature.



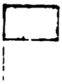
Fair weather.

Higher temperature.

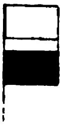


Fair weather.

Stationary temperature.

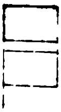


Local rains and higher temperature.



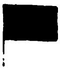
Local rains.

Stationary temperature.

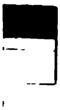


Local rains.

Lower temperature.

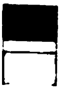


General rains and stationary temperature.



General rains.

Lower temperature.



General rains.

Higher temperature.

P. H. MELL, Jr.,
Director, Alabama Weather Service.

Agricultural and Mechanical College,
Auburn, Ala., August 15, 1884.

XVIII.

NEW ENGLAND METEOROLOGICAL SOCIETY.

The New England Meteorological Society was formed in Boston, in June, 1884, to promote the extension and diffusion of knowledge relating to the atmospheric phenomena of New England. It aims to awaken an interest in meteorology among the people; to lead the meteorological workers in New England to conduct their observations according to a common plan; and to discuss and publish the results obtained.

All persons interested in this work, whether they can undertake regular observations or not, are invited to apply for membership in the society by sending their names and addresses to the secretary, stating at the same time their occupations and whether they have hitherto made a practice of keeping records of the weather. Members have the right of attendance at the meetings of the society and will receive its publications free. The regular meetings will be held at places yet to be named, on the third Tuesdays of October, January, and April. The fee for membership is $3 a year.

The council of the society proposes to begin its work by undertaking to collect statistics of rainfall and range of temperature. A circular will be issued to members at a later date explaining the details of the plan of observation, with information as to the cost of the required instruments, which will be moderate. It is desired that observations should be made at numerous stations in all parts of New England, and to promote this end the council may, when advisable, secure the services of persons not members of the society. Regular observations will be begun as soon as practicable, and thereafter a monthly bulletin will be issued containing a summary of the observations collected.

It will be an aid to the society if those who receive this circular will bring it to the attention of such of their friends as are interested in the study of the weather. It is hoped that no one will fail to apply for membership, or to undertake observations simply on account of inexperience in meteorological work; the observations proposed are such as can easily be taken without more instruction than will be contained in the circulars to observers, and the time that they require will be short.

Applications for membership and communications relating to the society should be made to

W. M. DAVIS,
Secretary, Cambridge, Mass.

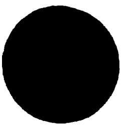
Correspondence concerning matters of observation should be addressed to

PROF. WINSLOW UPTON,
Director, Providence, R. I.

XVIII*a*.

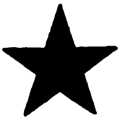
RAILWAY WEATHER SIGNALS.

DAY SIGNALS.



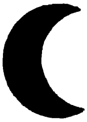
BLUE SUN.

General rain or snow.



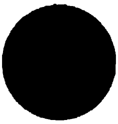
BLUE STAR.

Local rain or snow.



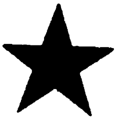
BLUE MOON.

Clear or fair weather.



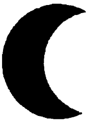
RED SUN.

Higher temperature.



RED STAR.

Stationary temperature.



RED MOON.

Lower temperature.

These signals are now in use on railroads in Ohio, Pennsylvania, and Canada.

Prof. T. C. Mendenhall, chief of the Ohio meteorological bureau, first placed this system of signals in practical operation, and he reports that citizens living on the lines of roads carrying these signals have received substantial benefits from the information they have thus obtained from this office. The signals consist of sheet-iron disks about 3 feet in diameter, and are displayed on the side of baggage-cars.

The Chief Signal Officer has prepared at Washington each night a special weather forecast for the region of the roads named, and this is telegraphed to the superintendent of each road soon after midnight, so that the morning trains may display the proper symbols to indicate the probable weather and temperature of the coming day. It must be remembered that these predictions indicate only the *probabilities*, and that no one can foretell the character of the weather for twenty-four hours with absolute certainty. It is believed, however, from past experience, that in a great majority of cases the predictions will be verified.

The signal will consist of two figures which differ in color, being red or blue, and in form, being shaped like the sun, a crescent, or a star. The red color refers to the temperature and the blue to the state of the weather, as rainfall or snow. They are used as below:

By "higher" or "lower" temperature is meant that the temperature at any hour of the day may be expected to be higher or lower than it was at the same hour the previous day, and by "stationary" temperature that it will not vary more than 3° or 4° from the record of the previous day.

Local rains are such as are likely to occur at one or more points along the line, but will not probably be general. Local rains are not generally of long duration.

NIGHT SIGNALS FOR RAILWAY STATIONS.

★	One green star—fair weather.
★★	Two green stars, fired in succession, with interval of one minute—local rain or snow.
★★★	Three green stars, fired in succession, with intervals of one minute—general rain or snow.
★	One red star—lower temperature.
★★	Two red stars, fired in succession, with interval of one minute—stationary temperature.
★★★	Three red stars, fired in succession, with intervals of one minute—higher temperature.

These signals were successfully used at the grange exposition at Williams Grove, Pennsylvania, August 26 to 29, 1884.

They are in the form of rockets or an exploding cartridge, which, when fired, may be seen from 6 to 10 miles. It is proposed to supply these signals to points in agricultural districts and have them fired at a stated hour during the night to indicate the probable weather for the coming day.

XIX.

CIRCULAR.—PUBLISHED BY CO-OPERATION OF THE WAR AND POST-OFFICE DEPARTMENTS.

SIGNAL OFFICE, WAR DEPARTMENT,
Washington City, ———, 188—

——— ———
——— ———

SIR: The Chief Signal Officer is desirous of increasing the usefulness of the Signal Service reports in your section. The information collected by the Signal Service, by means of the daily telegraphic reports, renders it possible for this office to announce the approach of sudden changes in temperature.

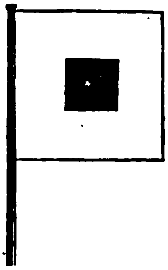
There is scarcely an industry which would not be greatly benefited by warning of the approach of *cold waves*, and especially is this true of those interested in agriculture and stock farming.

Not possessing the necessary funds to convey this information by telegraph to the various sections of the country, the next best means has been adopted, viz, to publish the information in the Farmers' Bulletin, as follows:

COLD WAVE COMING.

Cold-wave flag has been ordered up at ——, and the temperature will probably fall —— in the next 24 hours.

The country has been divided into districts, and *cold-wave* stations established at central points; when cold weather is anticipated, the *cold-wave* flag (white flag, six or eight feet square, with black center, about two feet square) will be ordered up at the central station and the information published in the Farmers' Bulletin. These bulletins are displayed at post-offices, and it is believed that a much wider distribution of the information thus given may be secured by the display of *cold-wave* flags at the various post-offices where the bulletin may be received.



The Signal Service is not prepared to supply these flags for general use, but a flag such as is described above will not cost more than $1, and there may be parties residing in the vicinity of your office willing to co-operate in this work by furnishing the flag and displaying it at some prominent point for the benefit of the public. It is believed that much benefit will result from prompt action on the part of those who may be charged with the display of these flags, and probably some arrangement may be made with the railroad companies, along whose lines stations may be located, to assure the transmission by telegraph of the order for the *cold-wave* signals before the receipt of the Farmers' Bulletin.

The cold-wave flag is displayed only when the warning is given in the Farmers' Bulletin, or by telegraph, and it should be taken down at the expiration of twenty-four hours, unless a second warning is published. Please present this circular to those of your neighbors who may be interested in this subject.

I am, very respectfully, your obedient servant,

W. B. HAZEN,
Brig. and Bvt. Maj. Gen'l, Chief Signal Officer, U. S. A.

XX.

[Circular.]

LOUISIANA STATE WEATHER SERVICE.—FROST WARNINGS.

In co-operation with the United States Signal Service, we have undertaken the transmission of cold-wave signals throughout the State, particularly in the sugar districts. The information gathered by the bureau enables them to announce cold waves at least twenty-four hours in advance of their reaching Louisiana, which will be of great advantage to the planters and farmers.

Through the kindness of the officers of the various railroad and telegraph lines throughout the State, we are enabled to announce that signals will be displayed at the points mentioned in appended list. We name also the place where the flag will be displayed.

The signals are: When a *cold wave, with possible frost, is coming, a white flag with black square center*. When a *frost is positively expected, a plain white flag.*

We urge the planters in the vicinity of each station to co-operate with us by associating themselves with a view to distributing rapidly the news in their section. We are prepared to furnish large flags to such associations at about $2 each, which can be seen at great distances.

Steamboats or steamers leaving the city when frost is expected will be asked to display the signal, as will also the trains on the various railroads.

Stations.	Signal displayed by—
New Orleans	The custom-house and the exchanges.
Kenner	Agent Mississippi Valley Railroad, through the kindness of J. M. Edwards, vice-president.
Saint Peters	do
Convent	do
Saint Gabriel	do
Baton Rouge	Major J. S. Jones, State University.
Port Eads	Capt. W. L. Wright, through the kindness Ocean Telegraph Company.
Point-a-la-Hache	F. Mevers, esq., through the kindness Ocean Telegraph Company.
Davis	Agent Texas and Pacific Railroad, through the kindness of Superintendent Cummings.
Saint John	do
Saint James	do
Achnel	do
Baton Rouge Junction	do
Gros Tete	do
Maringouin	do
Fordoche	do
Melville	do
Goshen	do
Morrows	do
Bunkil	do
Cheneyville	do
Lecompte	do
Mooreland	do
Donaldsonville	Dr. J. D. Hanson
Plaquemine	Messrs. Roth & McWilliams.
Bayou Sara	John F. Irvine, esq
Alexandria	Dr. Henry St. John
Cheneyville	Dr. J. R. Keator
Franklin	Dr. A. S. Gates
Jeannerette	Colonel Whitworth.
Morgan City	Dr. J. P. H. Wise.
New Iberia	Lee's Drug Store.
Opelousas	Chas. N. Ealer, esq.
Thibodeaux	S. T. Grisamore, esq.
Vermillionville	Messrs. M. P. Young & Co.
Whyteville	J. R. Hunter, esq.
Baldwin	Agent Mississippi, Louisiana and Texas Railroad, through the kindness of J. G. Schriever, vice-president.
Bayou Sale	Do.
Boutte	Do.
Broussardville	Do.
Carencro	Do.
Chacahoula	Do.
Eola	Do.
Grand Coteau	Do.
Pattersonville	Do.
Raceland	Do.
Saint Martinville	Do.
Sorrel	Do.
Terrebonne	Do.
Tigerville	Do.
Washington	Do.
Monroe	E. M. Coe, esq.
Lake Providence	V. M. Purdy, esq.
Delta	Dr. S. S. P. Dangerfield.
Saint Joseph	W. M. Davidson, esq.
Vidalia	W. T. Evans, esq.
Shreveport	U. S. Signal Office.
Minden	W. S. Hunter, esq.
Mansfield	S. B. Foster, esq.
Coushatta	L. M. Howard, esq.
Natchitoches	S. B. Jones, esq.
Lake Charles	Dr. Knapp.
Clinton	Thos Sadler, esq.
Amite City	W. H. Tegarden, esq.
Red River Landing	Dr. W. A. Martin.
Houma	F. Gouaux, esq.
Mandeville	Hon. Alex. Bend.

If any points in the sugar belt, other than those in the above list, can be reached by telegraph, we will be glad to establish stations at such places.

Information will be furnished and every assistance given to planters, &c., by the State weather service.

LOUIS BUSH,
President.
ROBERT S. DAY,
Secretary, P. O. Box 983, New Orleans, La.

XXI.

Reports of State Weather Services, July, 1884.

ALABAMA.

AUBURN, ALA., *August* 1, 1884.

Although there have been oppressive and sultry days, the month of July has sustained quite a uniform temperature, and the nights have generally been cool and comfortable. The heat in some sections, however, has been keenly felt, because the atmosphere was so saturated with moisture as to prevent rapid evaporation from the body. The thermometer ranged as high as 100° at only four stations.

The State has been visited by copious showers, and in some sections the rains have been unusually heavy. The farming interests, however, have suffered but little, and the prospects for a fine crop are very flattering.

State summary.—Mean temperature, 80°.5; highest temperature, 104° at Troy, on the 25th; lowest temperature, 54° at Selma, on the 8th; range of temperature for the State, 50°; greatest monthly ranges at stations, 35° at Troy and 41° at Calera; least monthly range of temperature, 14° at La Fayette and 25° at Auburn; greatest daily ranges at stations, 38° at Calera, 35° at Selma, on the 8th and 27° at Gadsden on the 21st; least daily ranges, 0° at Union Springs on the 10th, 0° at Florence on the 15th, 0° at Carrollton on the 28th, and 9° at Mobile on the 23d.

Mean depth of rainfall, 5.47 inches; mean daily rainfall, 0.186 inch; largest monthly rainfall, 12.02 at Green Springs; least monthly rainfall, 0.41 at Fort Deposit; greatest daily average for the State, 1.10 inches on the 28th; largest daily rainfall at stations, 3.50 inches at Carrollton, 3.10 at Scottsborough, and 3.50 inches at Wetumpka, all on the 28th.

Days of general rainfall, 14th, 15th, 25th to 29th; average number of days on which rain fell, 11; average number of cloudy days, 10.3; fair days, 13.5; clear days, 7.2.

Warmest day, 5th; coolest day, 8th.

Prevailing winds, west and northwest; greatest force of wind reported from Marion on the 13th—45 miles per hour from the west; Mobile reports, on the 6th, 28 miles per hour from the southeast.

GEORGIA.

The following meteorological summary is taken from the report of Hon. J. T. Henderson, commissioner of agriculture for the State of Georgia:

Districts.	Temperature.			Precipitation.
	Mean of maximum.	Mean of minimum.	Monthly mean.	
	°	°	°	*Inches.*
Northern Georgia	94.5	58.3	77.2	4.59
Middle Georgia	95.7	64.0	80.4	3.34
Southwestern Georgia	94.0	72.0	83.0	6.25
Southeastern Georgia	91.8	69.5	83.2	2.72
Eastern Georgia	95.5	64.5	82.2	3.31
Means for State	94.3	65.7	81.2	4.04

ILLINOIS.

The following meteorological summary is from the July report of the "Illinois Weather Service," under direction of Mr. S. D. Fisher:

Districts.	Temperature.			Precipitation.	Average number of rainy days.
	Mean of maximum.	Mean of minimum.	Monthly mean.		
	°	°	°	*Inches.*	
Northern counties	89.8	54.1	71.1	5.97	11
Central counties	92.1	59.2	73.5	3.62	12
Southern counties	95.0	64.3	76.8	3.97	10
Averages for State	92.3	59.2	73.8	4.52	11

INDIANA.

The following meteorological summary is taken from the July report of the "Indiana Weather Service":

Districts.	Temperature.			Precipitation.
	Mean of maximum.	Mean of minimum.	Monthly mean.	
	°	°	°	*Inches.*
Northern counties	90.0	56.7	73.6?	3.98
Central counties	90.2	57.3	72.4	4.99
Southern counties	92.1	58.6	74.6	4.74
Averages for State	90.8	57.5	73.6	4.57

IOWA.

July, 1884, was fair, cool, and calm, with moderate excess of rainfall.

The mean temperature was 2° below normal; during the past forty-five years the July temperature has been as much, or more, below normal in sixteen years. The first and second decades were decidedly cold, being 3° and 4½° below normal; but the third decade was hot, being 1½° above normal. The 17th was the coldest day, being 11° below normal; the 23d was the hottest day, with 10° above normal. The black-bulb sun thermometer averaged 68°.4 above the air temperature at noon, and reached 154° on the 23d.

The mean cloudiness was nearly normal, but the number of clear days was high.

The number of thunder-storms was high, and several were quite severe, locally accompanied with high wind or hail. The most extended of these was the squall of the afternoon and evening of the 11th, extending from Palo Alto to Johnson County, and considerable damage was done in a narrow belt from Hamilton County southeast by hail. The thunder-storm of the evening of the 23d and early morn of the 24th was most severe from Dallas to Marion County. The thunder-storm of the evening of the 4th was most severe in middle Eastern Iowa. Three very small tornadoes reached the ground over a short distance in Sioux City, Woodbury County, near Denison, Crawford County, and near Hubbard, Hardin County. This brings the latest summer date of tornadoes in Iowa two days further; but the damage done to life and property by these tornadoes was less than what lightning and hail did during the same storm in other parts of Iowa.

For the State at large the weather has been favorable. No continued rains having occurred, haying has been interfered with but little, and harvesting is progressing finely; the timely showers and intense insolation during the month, with hot weather during the last decade, have added immensely to the corn prospect, which has not been as good as now in Iowa for several years.

GUSTAVUS HINRICHS.

CENTRAL STATION, I. W. S., *August* 1, 1884.

KANSAS.

Prof. J. T. Lovewell, director of the Kansas Weather Service, furnishes the following meteorological summary of observations made at Washburn College, Topeka:

Temperature of the air.	June 20 to 30.	July 1 to 10.	July 10 to 20.	Mean.
Minimum and maximum averages:				
Minimum	68	62	66	....
Maximum	96	85	97	....
Minimum and maximum	82	78.5	83	....
Range	28	23	81	....
Tri-daily observations:				
7 a. m	72.4	71.3	71.7	71.8
2 p. m	86.5	87.0	84.8	86.1
9 p. m	78.2	75.4	75.4	74.7
Mean	77.4	77.4	76.4	77.1
Relative humidity:				
7 a. m	.89	.80	.88	.86
2 p. m	.69	.55	.70	.65
9 p. m	.85	.77	.85	.82
Mean	.82	.71	.81	.78
Pressure as observed:				
7 a. m	29.084	28.965	29.028	29.004
2 p. m	28.990	28.948	28.991	28.976
9 p. m	28.993	28.949	29.020	28.987
Mean	28.006	28.954	29.011	28.989
Miles per hour of wind:				
7 a. m	....	9.8	....	....
2 p. m	....	12.6	....	....
9 p. m	....	7.5	....	....
Total miles	1,630	2,418	1,964	6,007
Cloudiness, by tenths:				
7 a. m	4.4	4.7	4.6	4.6
2 p. m	4.7	2.5	4.5	8.9
9 p. m	2.6	8.0	4.8	3.3
Rain:				
Inches	2.29	1.78	2.73	6.80

LOUISIANA.

The weather, except for the high temperature, was without any special feature. The hot wave was present all over the State, reaching extreme figures in the northwestern parishes. At Minden nineteen days out of the month the mercury was over

Temperature.—The mean temperature of the air was 74.6. The average of all noon 100°; at Shreveport the thermometer registered over 100° on fourteen days. This has been the hottest July for twelve years. The lowlands have had cooler days, but warmer nights, the daily range appearing greatest on the uplands.

On the 10th a heavy storm, with vivid electric phenomena, occurred at Donaldsonville.

A heavy wind storm from the west, velocity 37 miles per hour, occurred at New Orleans on the 26th.

Thunder-storms occurred at New Orleans on the 6th, 7th, 10th, 15th, and 26th.

Crops are reported excellent on the lowlands, but they need rain on the hills and prairies.

State summary.—Mean temperature, 84°.6, against 78°.5 for June; highest temperature, 106° at Minden, on the 8th; lowest temperature, 59° at Opelousas, on the 28th; greatest daily range of temperature, 38° at Alexandria, on the 1st; least daily range of temperature, 8° at Natchitoches, on the 18th.

Average rainfall, 2.40 inches; greatest daily rainfall, 2.04 inches at Opelousas, on the 24th; largest monthly rainfall, 4.88 inches at Lafayette.

Average number of rainy days, 5.6.

The Mississippi River at New Orleans fell 3 feet 10 inches during the month; and the Red River at Shreveport fell 11 feet and 2 inches.

The following extract is from the "Michigan Crop Report" for July, 1884, prepared under the direction of the State secretary:

"The weather during harvest time was exceptionally fine. The rainfall at Lansing during July amounted to 3.24 inches, as compared with 10.12 inches for July, 1883. The weather during the last week of the month was unusually cool for the time of year. Light frosts were observed on the mornings of the 8th and 9th."

The Chief Signal Officer has received a valuable report on the principal meteorological conditions in Michigan during the year 1882, by the Michigan State board of health, Dr. Henry B. Baker, secretary.

MISSOURI.

The mean temperature during the past month has been 77°.6, which is 1°.6 below the normal for July at Saint Louis. The daily means were with very little range during the whole month.

The mean daily range was 15°.4, with small ranges on the 5th, 15th, and 17th.

The maximum temperatures were generally observed on the 8th of the month, with some few exceptions for the 23d.

The minimum temperature at the central station was observed on the 14th. The range of the minimum temperatures was remarkably small, the mean minimum being 69°.9.

The rainfall at the central station was 2.94 inches, which is 1.22 inches below the normal amount for July. This amount, however, has generally been exceeded in the other parts of the State, Hannibal, Keokuk, and Mascoutah, only, registering as low or below. The largest amount has been in the central part of the State, with larger amounts in the southeastern, central-southern, and northwestern portions. A remarkably heavy rainfall was observed at Miami on the 13th, 5.25 inches falling in twelve hours.

In some parts of the State there has been a great number of thunder-storms, generally in the vicinity of the Missouri and Mississippi Rivers.

Hail fell at Ironton on the 5th, at Chamois on the 5th and 15th, at Mexico on the 12th, and at Miami, with damaging results to the corn crop, on the 27th.

Glasgow and Lexington report that the large amounts of rain did damage to the wheat in the shock and the hay. The corn and tobacco crops are generally reported as doing finely, the corn in some localities being extra fine and beyond the danger of drought.

A. RAMEL,
Assistant in charge.

WASHINGTON UNIVERSITY, *August* 8, 1884.

NEBRASKA.

The general character of the month was cool, with rainfall considerably above the normal.

Rainfall.—The average by sections was as follows: southeast, 7.40 inches; northeast, 6.07 inches; southwest, 7.85 inches; northwest, 4.27 inches; average for the entire State, 6.55 inches.

Relative humidity.—Mean relative humidity at Omaha, 65.0 per cent.; North Platte, 70.9 per cent.; De Soto, 82.7 per cent.

observations was 83.8. The following are some of the maximum and minimum temperatures:

Stations.	Max. temperature.	Min. temperature.
	°	°
Omaha	97.8	57.5
North Platte	97.0	55.0
De Soto	96.0	55.0
Crete	95.6	52.4

Wind.—Number of miles traveled: Omaha, 5,385; North Platte, 7,187; Crete, 7,498. Highest velocity: Omaha, 42 miles, from north; North Platte, 47 miles, from west; Crete, 50 miles, from north.

Hail.—Hail was reported at Superior on the 30th; Marquette on the 20th; Dawson on the 29th; Stromsburg on the 13th and 27th, and Fremont on the 18th.

NEW JERSEY.

The following extract is from the "New Jersey Weather Review" for July, 1884, prepared under the direction of Mr. W. Earle Cass, of Newark:

"The temperature ranged from 97° at Salem to 54° at Newark and Lambertville; the mean temperature of the State, as represented by twelve stations, being 70°.90, which is several degrees below the average of past years.

"The rainfall varied from 2.20 inches at Salem to 6.48 inches at Paterson, the average for eighteen stations being 4.96 inches. The rainy days ranged from seven to seventeen in different parts of the State.

"Warm days (between 65° and 84°) about twenty-three in number. Hot days (maximum temperature between 85° and 95°), about seven. No very hot days were reported (maximum temperature over 95°).

"Prevailing wind, southwest to northwest.

OHIO.

The atmospheric pressure for the month of July was somewhat lower than during the corresponding month of last year. The difference is approximately one-tenth of an inch, alike for the mean, the maximum, and the minimum. The lowest barometer was recorded on the last day of the month, and no extraordinary fluctuations are reported.

The temperature was, on the whole, somewhat lower than for July of last year. The mean temperature was 71°.5 against 72°.1 for last year. The highest temperature observed was 96°.0, at Waverly, the maximum for the same month of last year being 97°.8. Minimum temperature, which was 41°, recorded at Lebanon, was more than 2° lower than that of July, 1883.

The noticeable feature of the weather for the month was the absence of rain during the greater part of it. During the last third of the month of June and nearly all of July, very little rain fell, the severe drought extending over nearly all of the State. Heavy rains occurred very generally during the last week of July, and the total precipitation for the month, as shown in the summary, was brought nearly up to that of last year, and somewhat above the normal amount for July.

The prevailing direction of the wind was from the northwest.

State summary.

Mean barometer, 29.900 inches.
Highest barometer, 30.279 inches, on the 3d at Jefferson.
Lowest barometer, 29.569 inches, on the 31st at Jefferson.
Range of barometer, 0.710 inch.
Mean relative humidity, 70.1 per cent.
Mean temperature, 71°.5.
Highest temperature, 96°.0, on the 24th at Waverly.
Lowest temperature, 41.°0, on the 21st at Lebanon.
Range of temperature, 55°.0.
Mean daily range of temperature, 21°.7.
Greatest daily range of temperature, 49°.5, on the 22d at Ohio State University.
Least daily range of temperature, 3°.0, on the 19th at Jefferson.
Number of clear days, 11.7.
Number of fair days, 14.2.
Number of cloudy days, 5.1.
Number of days on which rain fell, 10.5.
Mean rainfall, 3.83 inches.
Average daily rainfall, .123 inch.
Greatest rainfall, 6.60 inches, at Junction.
Least rainfall, 1.70 inches, at College Hill.

TENNESSEE.

The weather during July presented many unusual features, the chief of which were the extraordinary electrical disturbances and the amount of rainfall. The storms which prevailed were, many of them, general in their character, and some of them, notably those of the 5th, 9th, and 30th, were quite destructive to the growing crops. The mean temperature for the month was 76°, which is 4° above that for the preceding month, and 2° above that for July, 1883. The highest temperature was 99°, which is 1° above July, 1883; the lowest was 46°, or 10° below July of last year; the mean of the maximum and minimum temperatures differed very slightly from those of 1883. The high temperatures were general about the 5th and 24th, and the low temperatures about the 7th. The average rainfall for the month was 5.55 inches, which is 0.25 inch greater than that for the preceding month, and 1.67 inches greater than that for July, 1883, which was itself an unusual amount for July. The days of greatest rainfall were the 4th, 9th, 15th, 18th, and from the 25th to 31st inclusive. The greatest daily rainfall occurred on the 31st, when an average of 1.03 inches fell throughout the State. Many of these rains were general, and many of them were accompanied by severe electric storms.

State summary.—Mean temperature, 76°; highest temperature, 99°, on the 4th, at Hohenwald, and on the 9th, at Woodstock; lowest temperature, 46°, on the 21st, at Andersonville; range of temperature, 53°; greatest daily range of temperature, 36°, on the 21st, at Andersonville, and on the 23d at Hohenwald; least daily range of temperature, 0° on the 30th, at Franklin, and 1° on the 26th, at Kingston Springs, and on the 30th at Hardison's Mills. Mean depth of rainfall, 5.55 inches; mean daily rainfall, .179 inch; greatest rainfall, 10.62 at Manchester; least rainfall, 1.98 at Woodstock. Average number of clear days, 9; fair days, 13; cloudy days, 9; average number of days on which rain fell, 11.6. Prevailing winds, west and southwest.

MISSISSIPPI.

The month was characterized by marked variations in temperature at nearly every station, and by great contrasts between the temperatures of different stations. The eastern side of the State showed the highest temperature, the thermometer several times reaching 100° in Okolona, Columbus, Macon, and Meridian. The average temperature for the whole State was 82.15. The July average for a number of years is about 82.

The rainfall varied greatly in different parts of the State as shown by the tabulated amounts. The heaviest daily falls were, on the 18th, 2.15 inches in Waynesboro; on 28th, 4.30 inches in Columbus, 2.99 inches in Aberdeen, 3.05 inches in Corinth, 2 inches in Holly Springs, and 2.50 inches in Hernando; and 3 inches in Corinth on the 31st.

The following tabulated statement is taken from the daily reports received from the stations named:

Stations.	Monthly mean temperature.	Highest temperature.	Dates.	Lowest temperature.	Dates.	Highest daily mean temperature.	Dates.
Corinth	77.3	98	5	52	30	88.5	5
Hernando	80.4	101	9, 23, 24	56	28	88	9
Woodcote, near Lamar	82.0	94	5, 9	72	8, 29, 30	87	5
Holly Springs	80.1	96	9	66	11, 12, 28	84.5	5, 9
Batesville	82.3	100	8	62	11	87	9
Oxford	80.7	98	9	61	12	85	9
Grenada	81.7	99	9	62	25	86.5	9
Okolona	84.2	104	24	64	8	90	14
Aberdeen	80.8	98	9	61	28	86	5
Columbus	83.2	102	3, 5, 13, 23	65	8	87.5	3
Macon	84.1	101	5	67	8	88.5	5
Meridian	83.7	104	13	65	8	89	18
Lake	81.0	98	9	65	8, 9	86.5	29
Jackson	84.4	104	5, 12	66	10	88	6, 29
Vicksburg	84.4	100	30	70	4	88	6, 30
Natches	83.7	96	9	73	1, 12, 21, 22, 23, 25	86	10
Brookhaven	83.9	99	9	68	20	87	30
Waynesboro	81.9	100	6	65	8, 9	87	6
Edwards	84.0	98	23	69	2	86.5	30
Memphis, Tenn	82.8	96	5, 9, 23	70	11, 12, 28	88	5, 9
Grand Junction, Tenn	79.6	96	9	74	8, 11, 12	84.5	5

Stations.	Lowest daily mean.	Dates.	Greatest daily range.	Dates.	Least daily range.	Dates.	No. of days rain fell.	Rainfall.
								Inch.
Corinth	68.5	30	33	30	15	14	7	9.44
Hernando	73	28	39	25	11	15	4	4.88
Woodcote, near Lamar	76	30	20	8	2	15	9	5
Holly Springs	75.5	11	25	12, 23	10	8	9	5.94
Batesville	76	11	30	7, 9	15	31	12	6.52
Oxford	76	16	32	12	11	30	5	3.91
Grenada	78.5	11, 12, 29, 31	35	25	17	11, 31	5	2.82
Okolona	78	8	33	23	14	26	8	0.70
Aberdeen	69	28	26	9, 22	2	25, 26	5	4.87
Columbus	79.5	26	31	8, 10, 22, 23	12	28	8	9.05
Macon	79	1, 8	31	10	12	18	8	5.18
Meridian	75	1	40	18	15	18	2	0.03
Lake	77	16	33	9	14	16	8	4.93
Jackson	79.5	10	32	12	14	16	4	0.17
Vicksburg	81.5	25	26	12	8	18	6	3.58
Natchez	80.5	24	22	12	11	24	7	0.62
Brookhaven	80.5	1, 20	26	9	18	14, 15, 18	2	0.48
Waynesboro	78	8, 11	32	9	10	11	14	7.47
Edwards	81	16	28	2	14	24	6	3.84
Memphis, Tenn	78.5	11	24	9	9	31	7	2.01
Grand Junction, Tenn	75.5	11	29	22, 23	13	31	11	5.11

R. B. FULTON, *Director.*

UNIVERSITY OF MISSISSIPPI,
August 12, 1884.

XXII.

ADDRESSED TO LEGISLATORS AND OTHERS.

AUBURN, ALA., *September* 8, 1884.

DEAR SIR: During the next session of the general assembly an effort will be made to secure the establishment of the weather service as a purely State institution. This communication is addressed to you to solicit your interest and influence in the enterprise. The successful operation of the system during the past few months has demonstrated beyond a doubt what a great benefit it will be to the whole people of the State if properly conducted.

Several of the States in the Union have already recognized the practical benefits accruing to the people by an elaborate meteorological system, and have established Weather Bureaus, and appropriated sufficient money to equip them thoroughly. Alabama is now called upon to take a step in the same direction.

The plan of the State service is to have a central office and a State director, and in each county at least one station well equipped with standard instruments. These stations will be placed in charge of competent men, who will keep careful records of temperature, rainfall, storms, frosts, and other atmospheric phenomena, and report the same to the director at such times and in such ways as may be found most advantageous. The director will publish at the close of each month a weather bulletin prepared from the reports received from these county stations. It will also be desirable to have at least one barometric station in each senatorial district to furnish data for the study of tornadoes and other destructive storms.

The director will be in immediate communication with the Chief Signal Officer at Washington, who will furnish by telegraph each day, without cost to the State, predictions of the weather twenty-four hours in advance. Through the co-operation of the railroads, already assured, the director will be enabled to have displayed at each telegraph station suitable signals designating the changes in the weather thus predicted, with but slight cost to the State system. The people will be thus warned of the approach of cold waves, heavy frosts, and violent storms of wind and rain.

Such a system as the one proposed will bring the benefits of the Signal Service of the United States into every county participating in the State service. It will be the means of soon securing better predictions of weather changes and of storms. It will give to every county the Government standards for temperature, rainfall, wind, velocity, humidity, &c., which are sources of useful public information. It will put within reach of local agricultural clubs means of accurate observations, which, in the course of years, must be valuable to any locality in the study of the adaptation and cultivation of the various plants that are of interest to the farmer. It will bring the science and methods of the National Signal Service within the reach of the principal high schools of the State, offering teachers and pupils alike excellent opportunities for studying the application of this science to agricultural interests.

P. H. MELL, JR.

XXIII.

[65th General Assembly, Regular Session. H. B. No. 481.]

BY THE COMMITTEE ON AGRICULTURE.

A BILL to establish a Meteorological Bureau for the State of Ohio.

SECTION 1. *Be it enacted by the General Assembly of the State of Ohio*, That there be, and hereby is, established at the State University at Columbus, Ohio, a central office for meteorological observations, with the professor of physics of said university, the secretary of the State board of agriculture, and a third person, to be appointed by the governor, as a board of directors; the members of the board of directors shall be commissioned by the governor, and be duly qualified as like officers of the State.

SEC. 2. The professor of physics of said university is hereby appointed president of the board, and by and with the advice of the directors shall establish, if practicable, one volunteer weather station in each Congressional district, and supervise the same; he shall receive reports therefrom, and reduce the same to tabular form, and report the same monthly to the State printer for publication as the Ohio weather report.

SEC. 3. That the State printer be authorized to print 2,000 copies of each monthly report; 1,000 copies shall be distributed by said board, and 1,000 copies shall be delivered to the secretary of state, to be distributed by him in the same manner as other State documents.

SEC. 4. There is hereby appropriated for the ensuing year, for the establishment and maintenance of said bureau and stations, the sum of $2,000, or so much thereof as may be necessary for the purpose of meeting the actual expenses of carrying out the provisions of this act; no part of said sum shall be paid for salaries of any officer or for office rent, but a reasonable part of the same may be paid for the services of a clerk at the central station.

SEC. 5. No money shall be expended, except upon the order of the resident director, by and with the approval of the board.

SEC. 6. This act shall take effect from and after its passage.

APPENDIX 9.

ABSOLUTE HUMIDITY AND MEAN CLOUDINESS IN THE UNITED STATES REPRESENTED BY TABLES AND CHARTS.

WAR DEPARTMENT, WASHINGTON CITY, *October* 17, 1884.

The CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.:

SIR: I have the honor to inclose herewith charts and tables prepared under your direction, in compliance with the request from the Colorado State Medical Society made by resolution of that society at its last annual meeting in Denver, Colo., January 15, 1884. Copy of the resolutions herewith.

Owing to a pressing demand for the reply to this request, I was unable to collect the necessary data, extending over a series of years, and as reliable estimates showed that the mean values of the data considered for 1882 or 1883 would not vary 5 per cent. from the means determined for a series of years, I calculated the absolute humidity for each season of the year at the stations of the Signal Service during the year 1883, and this expressed the weight of vapor in grains contained in each cubic foot of air, and was entered upon the chart at the station of observation.

Lines of equal absolute humidity were then traced upon the charts for each half grain in weight of vapor contained in each cubic foot of air. These charts, therefore, exhibit the relative dryness of the atmosphere during each season of the year in the several sections of the country. The lines of equal absolute humidity are traced for each half grain, and the shades are given for each whole grain in weight.

The service not having actual records of the duration of sunshine at Signal Service stations, it was presumed that charts exhibiting the average amount of cloudiness during each season of the year would prove interesting to the society, and I therefore prepared four charts showing the amount of cloudiness at the several stations during the year 1882. The mean cloudiness is given on a scale of 0 to 10, zero indicating total absence of clouds and 10 complete cloudiness, and a scale of shades indicating amount of cloudiness accompanies each of the four charts. The data used in preparing these charts were obtained from the three tri-daily telegraphic reports, the observations being taken at 7 a. m., 3 p. m., and 11 p. m., Washington time.

In addition to the charts requested, I have prepared a table to accompany this report, in which will be found the mean temperature, mean relative humidity, mean dew point, mean vapor tension, and mean absolute humidity for each season of 1883 at all Signal Service stations, and also the mean cloudiness, mean maximum temperature, mean minimum temperature, and mean daily range of temperature for each season of 1882, all of which may prove of interest to the members of the society making this request.

I am, very respectfully, your obedient servant,

H. H. C. DUNWOODY,
First Lieutenant, Fourth Artillery,
Acting Signal Officer and Assistant.

DENVER, COLO., *January* 15, 1884.

DEAR SIR: At the last annual meeting of the Colorado State Medical Society, the following resolution was unanimously adopted, and the undersigned were appointed a committee to consult with you in reference to the object herein named:

"*Resolved*, That the society respectfully and earnestly request the Chief Signal Officer, U. S. A., to furnish for publication in the annual report of the Signal Service Bureau, and in the Transactions of this society, two series of four maps each, in colors; one series giving by seasons the ratio of sunshine; and the other, the absolute amount f moisture or grains of vapor in a cubic foot of air; and that the cost, so far as this ociety's Transactions is concerned, be borne as a part of the publication expenses of he Colorado State Medical Society."

We would respectfully call attention to the fact that data in regard to sunshine and he dryness of the air are of the utmost importance to that large invalid class who are roubled with consumption, asthma, malaria, and kindred complaints, and likewise o the sixty thousand physicians in our country. We would submit further, that in urnishing these data the Signal Service can do more important work on land than it s now doing by saving life at sea, and that the health of a community is of as much nportance as its commerce or agriculture.

The population of the State of Colorado and adjoining States is largely composed of ersons who have sought and obtained a restoration of health in them, and the maps re ask for would be of the greatest utility to these and to the still larger class of invalids in the East and South who are eagerly seeking for a sanitarium combining sunshine and dry air.

The object of our request is to place in as graphic and as striking a manner as possible these facts, so that we may be furnished, from the reliable source of the Signal Service Bureau, with diagrams which will accurately portray the amount of sunshine and the dryness of the air in the several parts of our country.

As the resolution indicates, we, representing the medical profession of a large and growing section of this country, and speaking in the interests of our professional brethren and also of the consumptive class the country over, request you to furnish two series of maps, by preference of the size of your district map; the one series to show by coloring, as in your precipitation and other charts, the average of sunshine for the several districts in our country, by seasons; the other series to show the absolute humidity of the air for the same sections, by seasons. We would suggest that if hypsometric lines could be introduced on these maps, it would furnish additional information of value. In doing this we do not ask for any change in your methods of observation, but simply that the data collected may be put in the most available form.

Hoping for an early and favorable reply, we are most respectfully yours,

CHARLES DENISON, M. D.,
SAML. AUG. FISH, M. D.,
W. S. COCKRELL, M. D.,
Committee.

Brigadier and Brevet Major General W. B. HAZEN,
Chief Signal Officer, United States Army.

Table showing the mean temperature, relative humidity, dew-point, cloudiness, maximum, minimum, and daily range of temperature, vapor tension, and absolute humidity, for each of the four seasons, at stations of the Signal Service, United States Army.

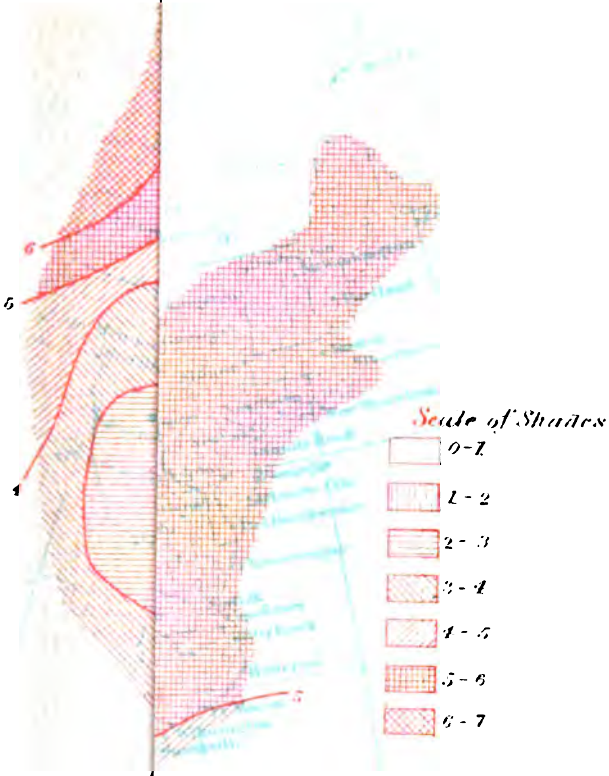
[Compiled for the year specified.]

Stations.	1882.															
	Mean cloudiness (scale of 0 to 10).				Mean maximum temperature.				Mean minimum temperature.				Mean daily range of temperature.			
	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.
					°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	6.3	5.1	6.0	6.8	54.3	79.9	61.2	36.4	38.9	63.4	47.2	22.2	15.4	16.5	14.0	14.2
Alpena, Mich	5.6	5.0	6.0	7.8	44.1	70.7	54.9	30.2	27.4	54.1	40.9	16.5	16.7	16.6	14.1	13.6
Apache, Fort, Ariz	2.4	4.7	2.5	3.4	70.1	88.1	71.8	53.0	32.0	52.6	33.5	22.2	38.1	35.5	37.8	30.8
Assinaboine, Fort, Mont	5.4	3.2	4.1	4.8	50.3	80.5	53.1	30.5	29.6	54.5	32.6	9.9	20.7	26.0	20.5	20.6
Atlanta, Ga	5.0	5.7	4.4	6.3	71.7	83.8	70.7	56.4	53.8	68.4	55.0	39.8	18.0	15.4	15.7	15.7
Atlantic City, N. J	5.5	4.8	5.2	5.2	53.9	76.9	63.1	41.9	39.9	64.2	51.2	27.1	14.0	12.8	11.8	14.7
Augusta, Ga	4.6	5.6	4.6	5.8	75.8	88.6	74.6	60.5	55.9	70.8	56.1	41.9	20.0	17.7	18.6	18.6
Baltimore, Md	6.1	5.2	5.0	5.2	60.0	83.0	64.6	43.5	44.3	67.5	52.2	30.7	15.7	15.5	12.4	12.8
Barnegat City, N. J	5.7	5.0	5.6	5.3	52.1	76.9	62.2	40.4	39.7	63.7	51.6	26.9	12.4	13.3	10.6	13.4
Bennett, Fort, Dak	6.1	4.6	4.9	4.7	56.0	83.1	60.8	37.0	33.7	57.6	36.1	9.1	22.4	25.5	24.7	27.9
Benton, Fort, Mont	5.9	3.4	5.4	5.0	55.6	83.3	54.2	36.9	30.6	55.0	32.8	11.7	24.9	27.9	21.4	25.2
Bismarck, Dak	5.7	4.0	4.7	4.1	48.4	78.5	53.9	27.0	28.4	56.7	34.5	3.7	20.1	21.8	19.5	23.4
Block Island, R. I	5.2	3.7	5.7	4.9	48.3	73.6	59.4	40.0	38.2	62.0	50.4	27.8	10.0	11.6	9.0	12.2
Boise City, Idaho	4.9	2.0	4.8	6.9	59.6	87.7	58.7	38.7	36.5	56.1	36.5	20.1	23.1	31.6	22.3	18.5
Boston, Mass	5.2	4.6	5.6	5.1	52.4	80.9	60.4	37.8	33.9	60.1	45.2	20.2	18.5	20.8	15.2	17.6
Brownsville, Tex	6.6	5.1	3.4	6.0	81.2	90.4	83.3	71.8	66.4	75.9	66.4	55.1	14.8	14.5	16.9	16.7
Buffalo, N. Y	6.3	5.5	5.3	7.6	47.9	72.0	58.8	34.9	34.3	59.7	44.9	22.8	13.7	12.3	14.0	12.1
Buford, Fort, Dak	5.9	3.3	4.4	4.4	50.9	82.8	54.8	27.9	27.3	52.8	32.7	4.8	23.6	30.0	22.1	23.1
Cairo, Ill	5.4	4.9	4.9	6.5	66.6	83.0	68.7	48.0	51.4	69.0	54.1	34.6	15.2	14.1	14.5	13.3
Cape Henry, Va	5.3	4.7	4.8	5.4	61.9	82.6	68.4	48.9	47.1	68.5	56.9	35.8	14.8	14.1	11.5	13.1
Cape May, N. J	5.8	4.8	4.9	5.3	56.7	77.1	66.1	44.8	42.2	66.6	55.3	31.3	14.4	10.5	10.8	13.5
Cape Mendocino, Cal	3.8	0.8	2.5	3.0	54.8	60.0	60.5	55.3	43.2	48.1	48.8	43.6	11.7	11.8	11.7	11.6
Cedar Keys, Fla	3.9	5.2	3.0	4.0	78.9	86.8	78.6	66.1	65.7	75.7	65.4	53.6	13.2	11.2	13.1	12.5
Charleston, S. C	4.5	5.0	4.4	4.6	74.7	88.8	74.4	61.1	59.4	73.3	60.7	46.1	15.3	15.5	13.7	15.0
Charlotte, N. C	5.6	5.6	4.4	5.8	69.7	85.4	69.5	51.5	50.9	69.5	52.5	36.7	18.8	15.9	16.9	14.8
Chattanooga, Tenn	5.2	5.2	4.6	6.3	70.9	84.6	70.2	52.0	52.1	67.2	54.3	38.0	18.8	17.5	15.9	13.9
Cheyenne, Wyo	4.8	3.8	2.7	3.3	53.9	80.2	59.4	39.9	29.6	50.5	31.3	17.4	24.3	29.8	28.1	22.5
Chicago, Ill	6.2	5.0	5.0	5.3	52.8	74.6	61.2	38.4	38.6	61.5	49.2	24.4	14.1	13.1	12.0	14.0
Chincoteague, Va	5.5	4.8	4.7	5.5	56.8	79.5	65.8	45.0	43.2	65.7	53.4	31.4	13.6	13.8	12.4	13.7
Cincinnati, Ohio	5.7	5.2	4.9	7.2	63.2	81.8	66.4	46.6	47.5	67.1	52.4	33.4	15.8	14.7	14.0	13.2

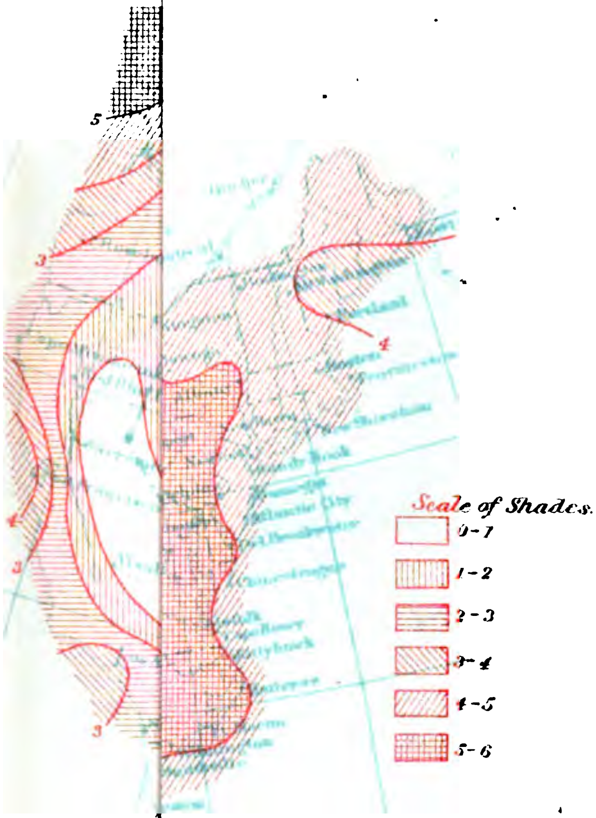
Cleveland, Ohio	6.3	5.0	5.4	7.1	52.6	76.1	61.0	37.4	37.4	60.8	46.2	23.8	15.2	15.2	14.9	13.6
Columbus, Ohio	6.2	6.0	5.0	7.3	59.8	79.6	63.9	42.1	42.4	63.1	48.0	28.8	17.4	16.5	15.9	13.3
Concho, Fort, Tex	4.2	4.5	4.0	4.8	80.7	92.9	75.7	60.9	52.7	67.4	51.8	38.1	27.9	25.4	23.9	22.8
Custer, Fort, Mont	6.2	4.4	4.6	5.0	56.9	83.8	59.2	34.8	32.9	55.2	35.0	12.6	24.0	28.5	24.8	23.8
Davenport, Iowa	6.2	5.5	5.1	5.7	57.8	78.6	62.7	40.6	38.3	62.2	46.5	22.4	19.1	16.8	16.1	18.8
Davis, Fort, Tex	2.9	4.0	2.6	3.4	75.5	85.6	71.3	58.0	45.8	61.7	46.5	33.7	29.7	23.8	24.8	24.8
Dayton, Wash	4.6	2.4	4.4	6.3	60.1	81.2	57.8	42.1	35.8	51.2	37.9	26.5	24.3	30.0	20.0	15.6
Deadwood, Dak	5.7	4.4	3.6	4.4	49.7	73.2	55.1	30.7	30.4	54.1	36.1	15.0	19.3	19.1	19.0	21.6
Delaware Breakwater, Del	5.8	5.1	4.6	6.1	55.1	77.7	65.1	43.8	43.0	65.1	54.4	31.3	12.1	12.6	10.7	12.5
Denver, Colo	4.2	3.0	2.0	2.5	59.1	81.7	63.3	45.2	35.7	57.2	38.7	23.2	23.4	24.4	24.7	22.0
Des Moines, Iowa	6.5	6.0	5.1	5.6	57.5	79.4	62.7	36.8	39.2	61.2	44.6	20.1	18.8	18.2	18.2	16.7
Detroit, Mich	5.9	5.2	5.4	6.8	53.4	77.7	61.9	39.4	38.8	61.2	47.2	27.8	14.5	16.5	14.6	11.6
Dodge City, Kans	4.7	3.4	3.4	4.8	65.7	87.5	70.6	47.4	41.3	62.5	42.0	21.6	24.4	25.0	28.5	25.8
Dubuque, Iowa	6.2	5.2	5.3	5.3	56.3	79.4	60.7	35.9	36.5	57.9	41.5	18.2	19.8	21.5	19.2	17.8
Duluth, Minn	5.4	5.0	6.5	6.4	45.0	69.1	52.6	27.1	29.9	54.4	41.7	10.6	15.0	14.7	10.9	16.6
Eastport, Me	5.3	4.1	5.1	5.7	43.0	69.5	52.7	30.1	30.0	51.1	41.9	14.8	13.0	18.8	10.8	15.4
Elliott, Fort, Tex	3.8	4.0	2.7	3.0	68.9	84.5	70.1	51.0	43.3	61.8	43.4	25.4	25.5	22.7	26.6	25.6
El Paso, Tex	1.9	2.8	2.0	2.8	81.7	98.0	76.5	58.4	46.9	65.9	46.3	32.1	34.8	32.1	30.2	28.3
Erie, Pa	5.6	4.7	5.5	7.8	51.4	74.8	60.5	38.2	37.3	61.2	47.6	25.6	14.0	13.6	13.0	12.6
Escanaba, Mich	5.9	5.4	6.2	7.1	45.0	70.8	55.3	29.2	29.3	54.5	41.1	15.7	15.7	16.3	14.2	13.4
Fort Smith, Ark	4.5	4.0	4.4	5.4	73.1	91.9	75.8	50.9	49.6	68.5	53.4	30.4	23.6	23.4	23.4	20.4
Galveston, Tex	6.0	5.0	4.6	5.8	76.8	87.0	76.8	65.3	67.6	77.8	68.0	54.5	9.3	9.6	8.8	10.7
Grand Haven, Mich	5.5	4.6	5.2	7.2	49.4	71.8	58.9	35.7	36.8	59.5	46.5	24.9	12.6	12.8	12.4	10.8
Grant, Fort, Ariz	2.5	4.8	2.4	8.2	71.0	86.6	71.8	54.5	44.9	64.1	48.9	33.6	26.1	22.5	22.8	20.9
Hatteras, N. C	5.1	5.3	4.9	5.5	63.6	83.0	69.7	53.4	50.8	71.6	60.1	41.0	12.8	11.4	9.6	12.4
Helena, Mont	5.6	3.9	4.3	6.1	49.0	76.5	52.5	30.6	32.9	56.8	35.8	15.8	16.1	20.2	17.1	14.8
Huron, Dak	6.0	4.0	4.7	4.9	53.3	79.7	59.1	31.4	32.5	56.1	30.1	7.0	20.8	23.6	22.9	24.4
Indianapolis, Ind	5.6	4.8	4.5	6.2	60.9	80.9	63.5	41.6	42.9	63.6	47.4	27.2	18.0	17.8	16.1	14.4
Indianola, Tex	5.5	4.2	4.0	5.7	77.9	88.7	78.9	66.6	66.8	76.0	66.2	53.7	11.6	12.7	12.8	12.9
Jacksonville, Fla	4.1	5.1	3.9	4.1	70.2	89.1	78.0	67.7	63.3	74.9	63.9	51.6	15.9	14.2	14.1	16.0
Keokuk, Iowa	5.2	4.5	4.3	5.2	59.4	80.2	64.2	39.9	42.5	64.3	47.4	24.6	16.8	15.8	16.8	15.4
Key West, Fla	4.2	4.2	3.8	3.6	83.5	90.9	82.6	76.9	73.3	78.4	74.2	68.1	10.2	12.5	8.4	8.8
Kitty Hawk, N. C	5.0	4.4	4.8	5.5	62.9	82.4	68.1	51.7	47.5	69.4	58.1	37.8	15.4	13.0	10.0	13.9
Knoxville, Tenn	4.9	5.6	4.5	6.2	69.8	83.2	70.9	51.8	49.0	65.1	51.7	34.7	20.9	18.1	19.1	16.6
La Mesilla, N. Mex	2.6	4.1	2.8	3.7	79.0	97.6	77.7	62.6	41.2	64.4	45.7	28.0	37.8	33.2	32.0	34.6
La Crosse, Wis	5.6	5.0	5.6	5.4	53.7	76.3	58.6	33.3	37.4	61.6	45.3	17.0	16.3	14.6	13.8	16.3
Leavenworth, Kans	5.8	4.2	4.1	5.5	63.6	83.7	67.6	44.8	44.6	64.4	48.2	27.3	19.0	19.4	19.3	17.5
Lewiston, Idaho	5.1	2.9	5.1	6.5	61.5	86.7	59.0	41.0	39.8	59.5	41.5	28.5	21.8	27.2	17.5	12.5
Little Rock, Ark	5.6	4.5	4.1	5.7	72.3	87.0	71.5	55.1	54.8	69.4	56.4	40.7	17.4	17.5	15.1	14.4
Los Angeles, Cal	3.7	3.3	2.3	2.9	70.5	82.8	76.3	63.4	47.4	57.7	60.7	41.7	23.2	25.1	25.7	21.8
Louisville, Ky	5.9	5.5	5.1	6.9	66.3	83.4	68.0	47.9	48.5	66.9	52.7	34.1	17.9	16.5	15.8	18.8
Lynchburg, Va	5.5	5.8	4.5	5.1	64.9	83.6	67.5	47.4	46.6	66.2	51.4	32.7	18.3	17.4	16.2	14.8
Mackinaw City, Mich	5.6	5.1	6.2	7.0	41.3	69.6	51.0	25.3	23.1	52.5	38.1	10.9	18.2	17.1	13.0	14.4
Macon, Fort, N. C	5.0	5.9	5.2	5.6	66.9	83.0	70.9	54.4	53.0	71.8	58.4	40.2	13.9	11.2	12.5	14.3
Maginnis, Fort, Mont	6.2	3.9	5.0	5.8	46.7	73.1	51.9	26.6	29.9	51.7	28.5	11.8	16.7	21.4	23.4	15.8
Marquette, Mich	5.7	4.9	6.2	7.9	44.1	67.9	54.1	30.5	28.6	52.8	41.0	16.5	15.5	15.1	13.1	14.0
Memphis, Tenn	4.9	4.7	4.5	6.8	71.0	86.4	71.4	53.9	54.2	69.5	55.8	39.5	16.8	16.9	15.7	14.4
Milwaukee, Wis	6.1	5.4	5.7	5.9	50.1	72.5	58.9	35.8	35.7	58.9	47.2	20.9	14.4	13.6	11.7	14.9
Mobile, Ala	4.4	5.5	3.8	5.7	79.8	90.2	77.2	63.8	61.0	78.1	60.9	47.5	18.3	17.1	16.3	15.8
Montgomery, Ala	4.7	5.5	4.0	5.5	77.0	88.6	75.5	62.0	57.5	70.8	57.2	44.8	19.5	17.8	18.4	17.7
Moorhead, Minn	5.4	4.4	5.0	5.0	47.0	76.7	53.1	19.5	25.7	54.3	33.0	−2.0	21.2	22.5	20.0	21.5
Mount Washington, N. H	5.3	4.0	4.3	5.0	25.2	51.0	37.2	17.0	10.6	30.6	24.7	−2.6	14.5	11.4	12.4	13.6

Table showing the mean temperature, relative humidity, dew-point, cloudiness, maximum, minimum, and daily range of temperature, vapor tension, and absolute humidity, for each of the four seasons, at stations of the Signal Service, United States Army—Continued.

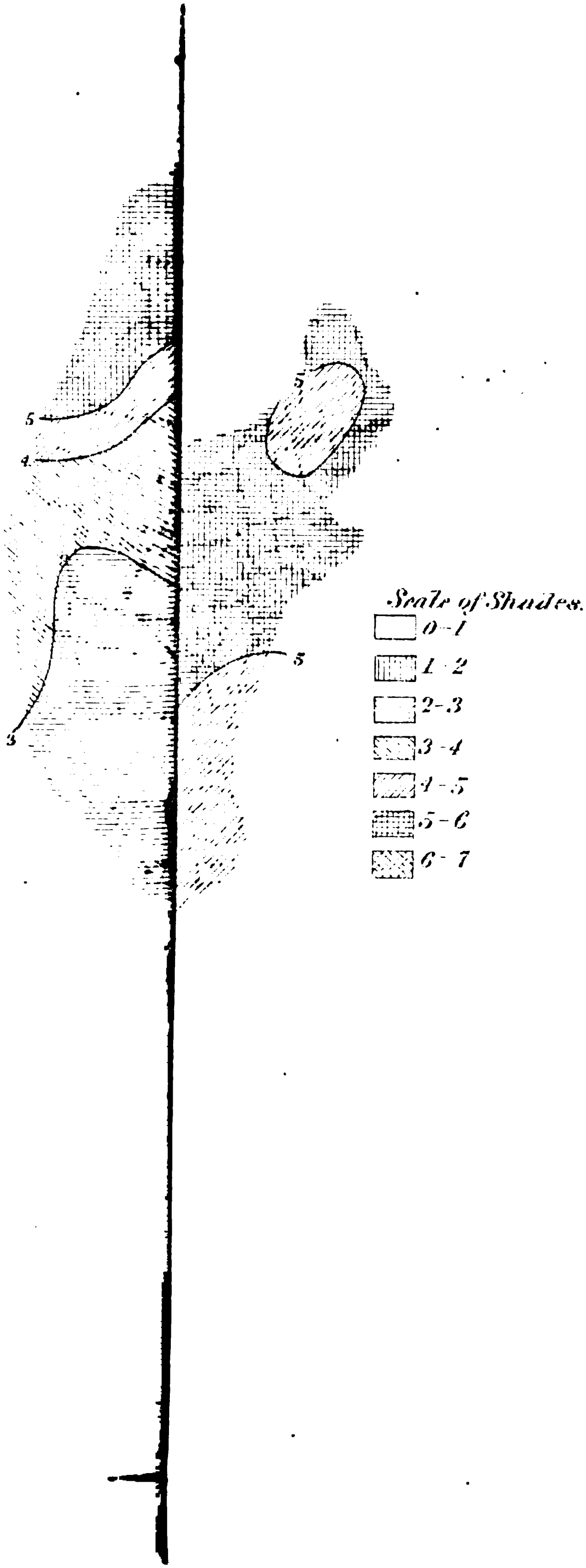
Stations.	1882.															
	Mean cloudiness (scale of 0 to 10).				Mean maximum temperature.				Mean minimum temperature.				Mean daily range of temperature.			
	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.
					°	°	°	°	°	°	°	°	°	°	°	°
Nashville, Tenn	5.8	5.9	5.8	7.0	69.8	85.8	71.8	52.0	50.8	67.8	54.4	36.8	19.1	18.0	16.9	15.2
New Haven, Conn	5.9	4.4	5.6	5.6	52.7	78.4	60.9	38.5	35.5	60.4	45.5	20.8	17.2	18.0	15.4	17.6
New London, Conn	5.5	4.2	5.7	5.1	52.0	77.3	60.4	38.9	37.1	60.9	46.8	23.5	14.9	16.4	13.6	15.8
New Orleans, La	4.9	5.8	4.0	5.1	78.2	86.7	77.8	66.7	65.1	75.5	65.0	52.4	13.1	11.2	12.8	14.8
New York, N. Y	5.4	3.8	5.1	5.5	54.7	80.3	63.2	40.0	39.2	64.6	49.9	26.8	15.5	15.6	13.2	13.2
Norfolk, Va	5.7	4.9	4.4	5.5	65.0	85.0	68.4	51.3	48.0	68.9	56.4	36.5	17.0	16.1	12.0	14.8
North Platte, Neb	5.0	3.3	3.0	3.7	59.7	81.0	64.1	41.8	36.5	59.2	38.3	15.5	23.2	21.7	25.8	26.3
Olympia, Wash	6.4	5.1	5.8	4.4	55.9	73.3	56.1	43.9	38.2	49.9	41.6	34.3	17.7	23.4	14.6	9.6
Omaha, Nebr	6.0	5.3	4.3	4.5	59.1	81.2	64.2	37.7	40.5	62.4	45.1	19.6	18.5	18.7	19.1	18.1
Oswego, N. Y	5.4	4.3	5.2	7.8	50.2	77.8	59.7	36.1	35.9	61.3	45.9	22.7	14.3	16.5	13.8	13.4
Palestine, Tex	5.1	4.7	4.4	5.8	76.3	89.2	75.3	63.3	58.3	70.4	58.1	47.0	18.0	18.9	17.1	16.4
Pensacola, Fla	4.2	5.6	3.9	5.1	76.9	85.8	76.5	63.8	62.5	73.4	62.6	50.0	14.4	12.4	14.5	13.9
Philadelphia, Pa	5.7	4.8	5.0	5.4	58.1	82.1	64.0	42.1	42.9	67.4	52.5	29.5	15.3	14.7	11.5	12.6
Pike's Peak, Colo	4.4	4.4	2.8	3.3	20.5	43.4	27.3	10.1	6.9	29.6	14.2	—2.0	13.6	13.8	13.1	12.1
Pioche, Nev	3.5	3.4	2.4	3.4	57.0	83.0	61.0	41.0	33.9	56.6	36.6	21.3	23.1	26.3	24.4	19.7
Pittsburg, Pa	6.1	5.2	4.6	7.2	60.5	82.3	64.4	41.7	40.5	62.1	47.2	27.3	20.0	20.2	17.1	14.3
Port Huron, Mich	6.3	5.8	5.6	7.2	48.4	73.7	58.1	34.1	33.0	57.7	43.4	20.5	15.3	16.0	14.7	13.7
Portland, Me	5.9	4.0	5.0	5.4	51.0	78.0	58.7	34.6	36.4	60.6	45.3	19.3	14.6	17.4	13.3	15.4
Portland, Oreg	6.3	4.2	5.4	7.4	59.5	77.1	60.6	46.9	41.6	54.8	44.7	36.7	18.0	22.4	16.0	10.3
Prescott, Ariz	1.8	2.7	2.0	2.7	67.9	86.5	68.8	50.1	34.2	56.4	37.5	19.3	33.7	30.1	31.4	30.8
Provincetown, Mass	5.9	4.2	5.9	6.0	48.2	77.9	58.2	36.1	35.6	59.4	48.4	23.9	12.6	18.5	9.8	12.1
Red Bluff, Cal	3.2	1.3	3.2	4.1	70.7	94.1	73.2	54.1	47.5	64.9	50.7	36.9	23.2	29.2	22.5	17.3
Rio Grande City, Tex	5.2	2.9	4.8	5.5	86.2	97.5	83.6	69.7	65.6	75.2	64.1	50.5	20.6	22.2	19.4	19.2
Rochester, N. Y	6.1	5.3	5.6	7.8	49.3	75.3	58.9	34.5	34.0	58.4	43.0	21.2	15.3	17.0	15.9	13.8
Roseburg, Oreg	6.0	2.9	5.3	7.1	60.2	79.3	61.2	46.8	39.1	51.3	42.1	35.3	21.0	27.9	19.1	11.5
Sacramento, Cal	2.8	0.7	2.4	3.6	68.4	87.4	69.7	54.5	48.4	58.5	49.0	38.9	20.0	28.8	20.7	15.7
Saint Louis, Mo	5.6	4.8	4.5	6.2	64.9	84.6	67.8	44.6	46.0	66.0	50.6	29.2	19.0	18.6	17.1	15.4
Saint Paul, Minn	5.5	5.1	5.6	5.4	53.8	79.5	58.3	30.5	34.8	59.1	41.7	12.4	19.0	20.5	16.6	18.1
Saint Vincent, Minn	4.9	3.7	5.1	4.9	41.5	74.8	50.1	13.3	21.1	51.2	31.2	—6.9	20.4	23.6	18.8	20.2
Salt Lake City, Utah	5.0	3.7	4.3	5.3	56.5	84.6	58.8	35.8	37.2	61.7	39.8	21.1	19.3	22.9	19.0	14.6
San Diego, Cal	3.8	2.6	2.6	3.4	65.5	73.7	69.7	61.6	50.6	61.9	54.2	44.4	14.8	11.8	15.6	17.2
Sandusky, Ohio	6.0	5.2	5.1	6.9	53.2	76.6	61.1	38.5	39.5	63.6	49.3	26.1	13.7	13.0	11.8	12.4

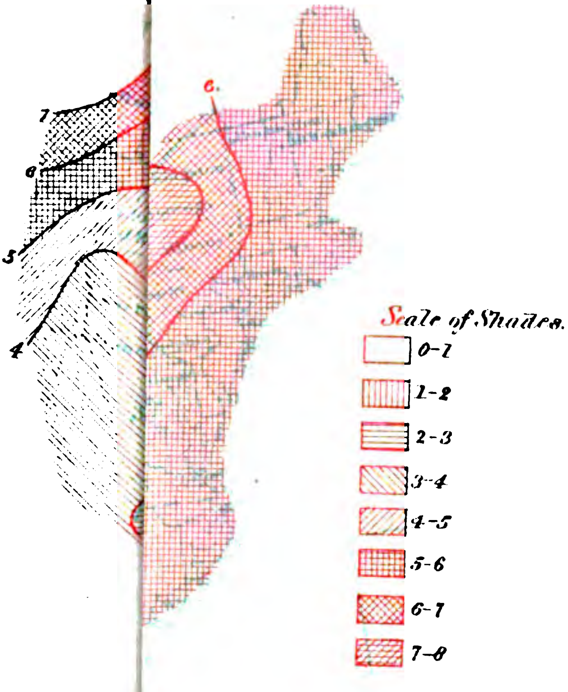

6
5
4
5
Scale of Shades
0 - 1
1 - 2
2 - 3
3 - 4
4 - 5
5 - 6
6 - 7

2

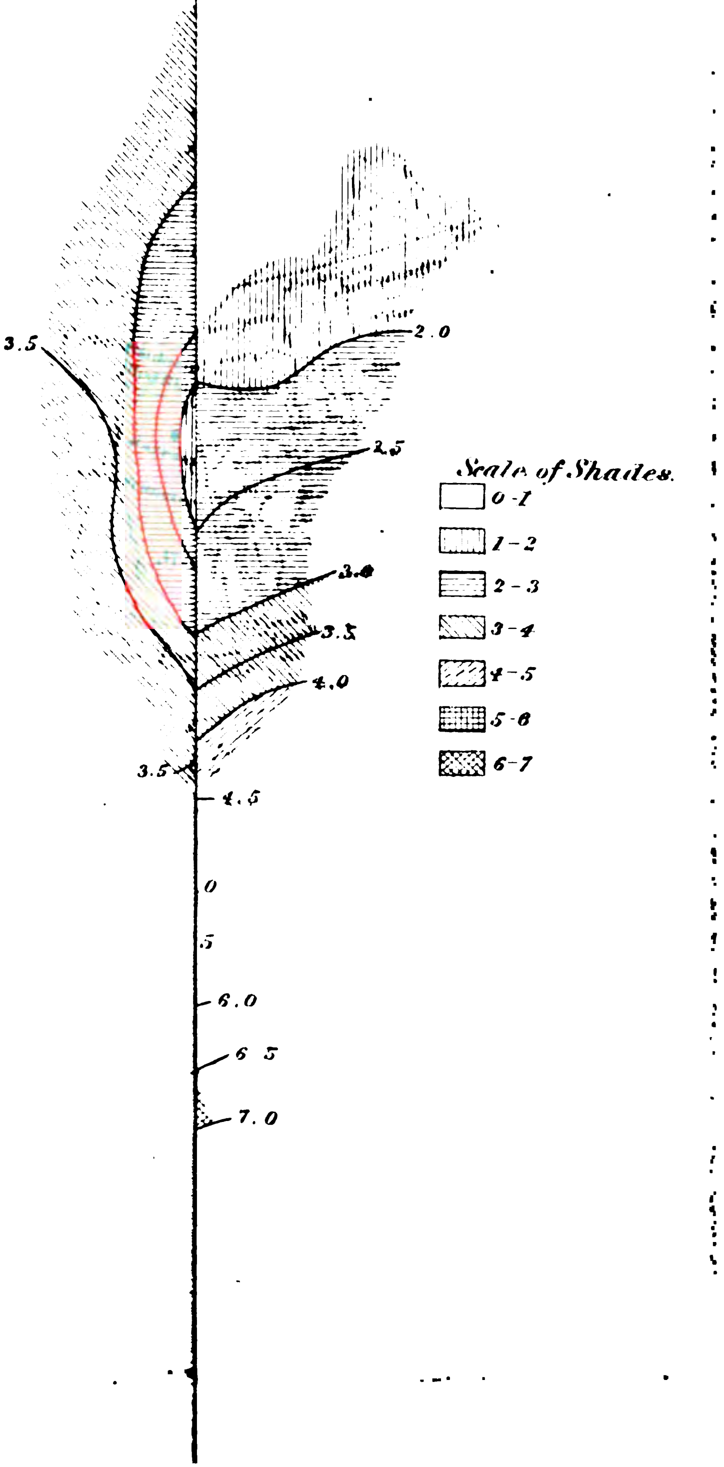

5
3
4
3
4
3
3
Portland
Boston
Sandy Hook
Atlantic City
Scale of Shades.
0-1
1-2
2-3
3-4
4-5
5-6

3

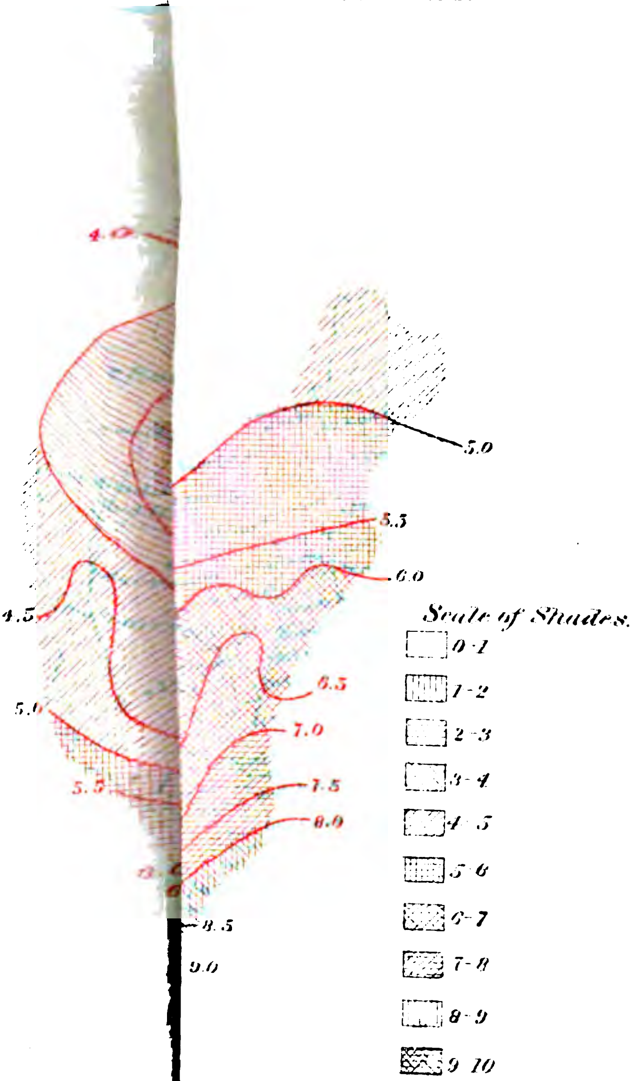



7
6
5
4
6.
Scale of Shades.
0-1
1-2
2-3
3-4
4-5
5-6
6-7
7-8

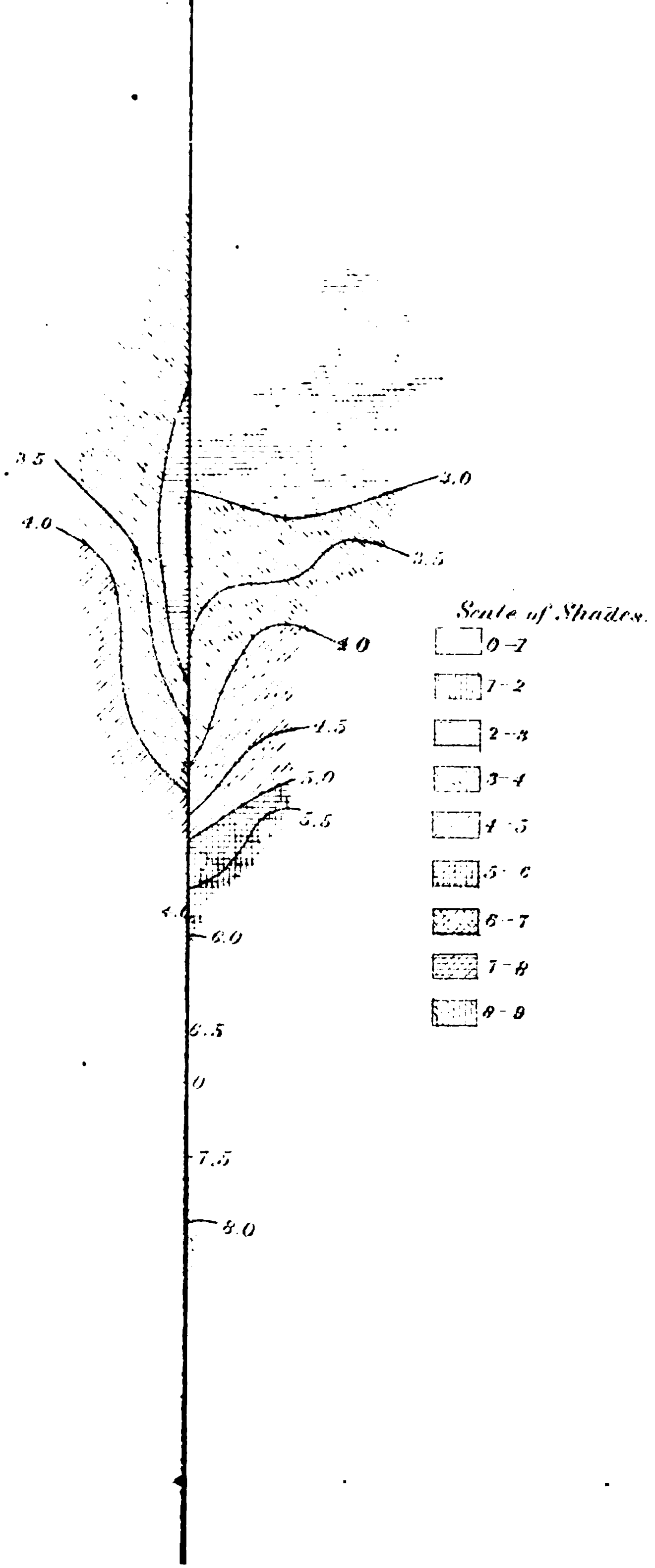
cubic foot of air.



cubic foot of air. **6**

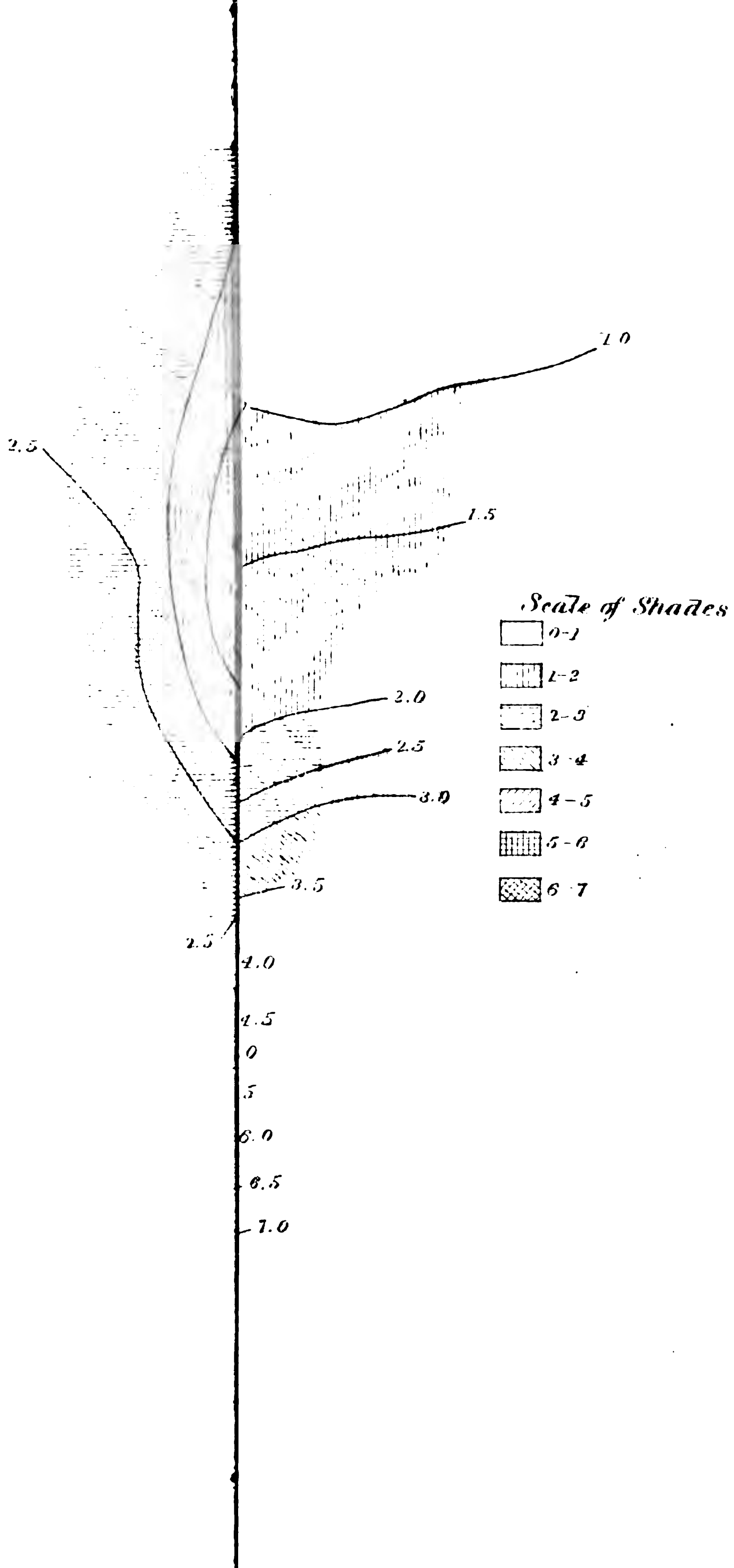


h cubic foot of air.



cubic foot of air.

8



Sandy Hook, N. J	5.2	4.8	5.2	5.1	54.1	79.3	62.8	39.5	40.2	65.5	52.2	27.4	13.8	13.8	10.2	12.1
San Francisco, Cal	3.9	4.8	3.5	3.9	60.1	63.7	62.4	54.7	48.8	53.6	52.1	45.9	11.4	10.2	10.3	8.8
Savannah, Ga	4.5	5.1	4.1	5.1	76.1	88.6	75.0	63.9	59.9	73.2	60.0	47.1	16.3	15.3	15.1	16.8
Shaw, Fort, Mont	5.1	3.8	4.6	4.6	52.1	79.4	53.5	34.5	28.3	49.6	32.8	14.6	23.9	29.8	31.2	19.8
Shreveport, La	5.6	5.0	4.9	6.0	79.4	91.7	76.1	59.7	59.1	71.6	58.2	44.8	20.4	20.1	17.9	15.4
Sill, Fort, Ind. T	4.5	4.8	3.6	4.7	73.8	89.8	72.1	58.9	50.1	67.4	50.2	32.5	23.7	22.8	21.9	21.4
Smithville, N. C	4.2	4.6	4.5	5.0	68.9	84.8	70.4	55.8	54.7	71.7	57.2	41.0	14.2	13.2	18.2	14.3
Spokane Falls, Wash	5.9	3.0	5.8	7.2	56.8	82.8	55.2	34.7	35.1	53.7	37.0	20.5	21.3	28.6	18.2	14.2
Springfield, Ill	5.5	4.7	4.4	5.8	61.1	80.7	64.9	43.0	44.5	64.8	48.7	27.7	16.7	16.3	16.2	15.3
Stockton, Fort, Tex	3.1	3.7	2.6	4.1	80.3	90.4	73.8	61.9	47.7	63.6	47.4	34.3	32.7	26.7	26.4	27.7
Santa Fe, N. Mex	3.5	4.5	2.3	3.1	60.6	80.2	61.5	43.8	36.7	55.2	38.4	21.1	23.9	25.0	23.1	22.3
Thomas, Camp, Ariz	2.1	3.8	2.8	3.4	77.1	96.0	76.8	58.0	43.1	67.1	44.7	29.4	33.9	29.0	32.1	28.5
Toledo, Ohio	6.3	5.5	5.4	6.7	54.4	77.8	61.9	39.7	39.1	62.4	47.1	27.1	15.3	15.4	14.9	12.6
Vicksburg, Miss	4.8	5.0	4.1	6.0	76.8	89.2	76.3	61.4	59.4	71.0	59.0	45.9	17.4	18.2	17.3	15.5
Visalia, Cal	2.9	0.6	2.4	3.5	72.7	91.9	73.1	55.4	46.7	58.3	43.8	37.2	26.1	33.6	29.2	18.1
Washington, D. C	5.9	5.1	5.1	5.4	60.8	84.4	66.3	43.5	42.8	65.8	50.1	28.4	18.0	18.7	16.1	15.1
West Las Animas, Colo	3.9	3.9	2.9	2.7	66.0	88.8	68.4	50.3	36.0	59.1	35.0	14.6	30.0	29.2	33.4	35.8
Wilmington, N. C	5.1	5.7	4.8	5.7	71.4	85.5	71.7	58.4	54.9	71.7	57.5	41.9	16.5	12.8	14.2	16.6
Winnemucca, Nev	3.5	2.1	3.5	4.7	57.2	86.9	59.7	38.7	31.3	51.6	31.6	16.1	26.0	35.3	28.1	22.5
Yankton, Dak	5.4	4.1	3.4	4.3	56.6	81.8	62.7	35.6	36.5	59.8	40.5	13.2	20.1	22.0	22.1	22.4
Yuma, Ariz	1.5	2.8	1.8	2.4	84.5	104.3	84.6	66.7	54.4	75.4	58.2	42.9	30.1	28.9	26.4	28.8

Table showing the mean temperature, relative humidity, dew-point, cloudiness, maximum, minimum, and daily range of temperature, vapor tension, and absolute humidity, for each of the four seasons, at stations of the Signal Service, United States Army—Continued.

Stations.	1883.																			
	Mean temperature.				Mean relative humidity.				Mean dew-point.				Mean vapor tension.				Mean absolute humidity.			
	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.
	°	°	°	°					°	°	°	°								
Albany, N. Y	45.5	71.6	52.0	27.7	56.7	63.0	65.8	64.4	30.0	57.4	39.9	17.8	.166	.472	.246	.097	1.97	5.28	2.86	1.19
Alpena, Mich	32.7	61.2	43.0	18.2	70.3	74.7	78.0	77.1	23.5	52.2	36.1	11.8	.126	.391	.212	.072	1.50	4.40	2.47	0.88
Apache, Fort, Ariz	50.6	69.6	51.8	35.7	51.4	53.4	53.8	64.8	29.4	48.0	33.1	26.5	.162	.335	.189	.143	1.92	3.81	2.21	1.70
Assinaboine, Fort, Mont	39.8	65.0	39.7	12.1	61.7	50.1	62.9	61.8	26.5	43.4	26.6	2.1	.143	.281	.144	.047	1.20	3.23	1.70	0.59
Atlanta, Ga	59.3	76.9	63.2	44.4	65.8	67.7	68.7	74.0	46.5	64.3	51.3	37.9	.316	.602	.378	.228	3.61	6.68	4.80	2.65
Atlantic City, N. J	45.7	70.2	55.5	33.0	78.4	79.6	76.0	74.7	38.9	63.2	47.5	27.0	.237	.579	.328	.181	2.75	6.86	3.78	1.46
Augusta, Ga	62.9	80.8	66.5	50.3	63.9	68.4	69.8	72.4	48.6	68.1	56.5	43.3	.342	.687	.457	.280	3.87	7.49	5.10	3.28
Baltimore, Md	51.8	74.8	56.9	36.0	60.7	66.4	69.1	68.6	37.0	61.8	46.1	27.1	.238	.551	.312	.147	2.76	6.15	3.55	1.74
Barnegat City, N. J	46.2	70.4	55.4	33.4	76.0	80.9	77.7	78.7	38.6	63.9	48.1	28.2	.234	.594	.336	.154	2.70	6.57	3.81	1.40
Bennett, Fort, Dak	42.2	68.7	43.9	14.0	70.4	67.8	64.1	75.0	32.0	56.0	31.0	7.0	.181	.449	.173	.059	2.12	5.03	2.04	0.74
Benton, Fort, Mont	42.1	67.7	43.3	18.3	60.1	48.7	65.5	62.6	28.0	45.2	26.2	5.3	.153	.301	.141	.054	1.82	3.43	1.67	0.69
Bismarck, Dak	37.6	65.9	41.0	5.8	67.0	65.8	73.7	81.3	26.2	52.8	31.6	2.2	.141	.399	.178	.043	1.67	4.54	2.08	0.54
Block Island, R. I	42.6	67.2	53.3	32.5	73.7	83.7	78.9	74.7	35.6	61.7	46.6	25.6	.205	.549	.317	.138	2.41	6.05	3.61	1.63
Boise City, Idaho	50.0	70.1	48.5	31.7	59.5	41.1	58.9	74.4	35.0	45.2	34.9	22.0	.203	.301	.202	.117	2.38	3.42	2.38	1.41
Boston, Mass	43.7	69.3	49.7	28.3	69.4	69.3	74.4	71.7	33.5	58.3	41.2	19.9	.207	.487	.259	.107	2.42	5.38	2.97	1.29
Brownsville, Tex	73.7	83.3	75.1	58.1	77.4	76.7	80.2	79.7	65.3	74.2	51.1	52.5	.623	.....	.....	.419	6.90	9.08	6.25	4.43
Buffalo, N. Y	38.1	65.6	49.8	23.9	73.7	74.5	73.0	81.5	20.6	56.7	40.8	10.5	.164	.460	.255	.105	1.92	5.10	2.91	1.26
Buford, Fort, Dak	37.6	65.4	38.3	5.0	68.8	65.1	72.4	78.6	27.0	51.4	28.7	—1.7	.146	.379	.138	.040	1.74	4.30	1.63	0.50
Cairo, Ill	56.3	76.1	59.4	36.2	66.8	73.2	72.6	77.2	44.5	66.2	49.7	30.8	.293	.643	.356	.168	3.36	7.02	4.01	1.99
Cape Henry, Va	53.2	75.6	62.0	40.5	73.7	76.2	74.9	79.9	44.0	67.0	53.3	36.2	.288	.661	.407	.213	3.30	7.25	4.60	2.46
Cape May, N. J	49.1	71.3	57.1	37.2	76.3	79.6	75.7	76.2	41.7	64.4	49.1	31.2	.264	.604	.349	.175	3.01	6.68	3.95	1.74
Cape Mendocino, Cal	48.6	58.9	54.2	46.0	85.2	80.1	78.9	80.1	44.1	52.2	44.4	39.5	.289	.391	.292	.....	3.30	4.45	3.87	.....
Cedar Keys, Fla	69.7	83.2	73.9	60.1	72.8	74.7	77.4	77.5	59.8	74.0	65.9	56.0	.514	.839	.634	.449	5.66	9.08	7.02	5.02
Charleston, S. C	62.9	81.2	67.6	52.3	76.0	80.3	83.2	80.9	54.5	74.8	61.8	48.9	.428	.841	.551	.346	4.77	9.08	6.15	3.94
Charlotte, N. C	58.0	78.2	60.8	42.1	61.8	62.4	71.1	75.2	43.2	63.1	50.1	35.9	.279	.577	.362	.211	3.19	6.36	4.09	2.46
Chattanooga, Tenn	58.9	76.6	62.1	43.2	63.2	70.1	73.1	70.6	45.1	65.0	52.3	35.8	.300	.617	.392	.210	3.42	6.79	4.45	2.47
Cheyenne, Wyo	40.3	61.8	44.3	23.2	56.6	55.0	47.9	47.8	23.8	42.2	21.7	7.9	.127	.269	.116	.060	1.50	3.08	1.37	0.77
Chicago, Ill	43.0	67.8	51.3	21.8	64.3	70.6	69.0	71.6	31.2	57.3	40.8	14.7	.175	.470	.255	.084	2.04	5.24	2.91	1.01
Chincoteague, Va	49.3	72.6	58.4	36.7	76.8	81.8	80.1	78.8	41.7	66.3	51.8	31.9	.307	.645	.385	.200	3.01	7.13	4.88	1.80
Cincinnati, Ohio	52.6	74.5	57.9	34.7	67.2	64.4	69.0	78.5	40.9	60.9	46.8	30.2	.256	.534	.320	.168	2.97	5.95	3.68	1.96
Cleveland, Ohio	42.2	68.3	51.5	25.6	67.4	67.4	66.8	81.5	31.1	56.3	39.9	21.1	.174	.460	.246	.113	2.04	5.10	2.86	1.35
Columbus, Ohio	48.3	70.9	53.4	30.6	63.6	65.6	67.7	71.4	35.4	57.7	42.5	23.4	.207	.477	.298	.125	2.40	5.80	3.12	1.50
Concho, Fort, Tex	63.5	81.2	64.2	42.8	62.2	59.8	71.4	64.3	47.9	61.6	53.4	32.3	.333	.548	.408	.183	3.81	6.05	4.60	2.16

Custer, Fort, Mont	44.1	68.4	44.6	21.2	63.4	51.3	57.3	70.4	31.8	40.1	30.4	14.5	.079	.349	.169	......	2.08	3.96	2.00	1.02
Davenport, Iowa	47.8	70.6	51.0	22.7	62.4	71.7	68.4	60.2	34.8	60.1	40.1	11.5	.202	.519	.248	.073	2.50	5.70	2.80	0.69
Davis, Fort, Tex	60.0	74.2	60.4	48.3	44.1	50.6	57.0	51.1	33.0	51.5	49.0	24.5	.188	.381	.347	.131	2.21	4.80	3.95	1.56
Dayton, Wash	49.4	67.7	49.6	27.5	66.2	46.9	65.2	70.7	37.3	44.7	36.7	20.0	.223	.296	.217	.107	2.60	3.73	2.51	1.30
Deadwood, Dak	37.8	60.9	42.7	20.5	63.6	71.7	72.9	81.1	32.9	50.8	34.0	14.3	.187	.371	.195	.083	2.21	4.23	2.20	1.00
Delaware Breakwater, Del	47.6	71.5	57.7	35.1	78.3	81.0	80.0	80.6	40.7	64.9	51.1	30.7	.251	.615	.375	.171	2.91	6.79	4.23	2.04
Denver, Colo	47.9	69.1	50.4	28.6	55.8	50.8	50.1	57.4	30.0	46.9	29.3	14.5	.164	.321	.162	.083	1.97	3.68	1.80	1.02
Des Moines, Iowa	46.8	70.3	49.0	17.3	66.3	72.8	68.8	65.8	35.2	60.0	38.0	8.4	.205	.517	.229	.063	2.38	5.76	2.66	0.78
Detroit, Mich	43.4	68.9	51.4	26.3	70.4	70.7	72.4	77.8	33.7	58.3	42.3	20.8	.193	.487	.270	.111	2.24	5.45	3.08	1.35
Dodge City, Kans	51.4	72.8	52.2	26.7	57.4	69.1	66.2	64.8	34.3	60.8	39.7	17.0	.198	.532	.244	.094	2.33	5.85	2.86	1.15
Dubuque, Iowa	45.1	69.6	48.7	17.5	61.0	67.1	64.8	60.9	31.2	57.2	30.2	6.1	.175	.468	......	.057	2.04	5.20	2.47	0.70
Duluth, Minn	36.1	62.7	42.8	10.2	67.3	70.7	73.7	74.5	25.7	52.1	34.5	3.2	.138	.389	.199	.049	1.63	4.38	2.33	0.62
Eastport, Me	36.3	60.0	46.3	20.2	71.6	75.6	73.5	74.7	27.4	51.5	37.7	12.9	.149	.381	.226	.077	1.77	4.80	2.66	0.95
Elliott, Fort, Tex	54.5	74.0	55.9	31.4	54.7	58.7	63.5	57.4	30.8	57.8	41.5	17.1	.218	......	.262	......	2.50	5.28	3.01	1.30
El Paso, Tex	62.9	80.9	60.7	45.0	34.2	41.0	58.6	50.4	28.9	51.6	40.9	25.9	.159	.382	.256	.140	1.89	4.30	2.97	1.70
Erie, Pa	42.2	58.2	51.6	27.2	69.8	71.7	73.8	78.0	32.4	58.2	43.1	22.4	.184	.485	.278	.109	2.16	5.38	3.19	1.32
Escanaba, Mich	32.9	61.7	43.2	14.8	67.6	75.2	75.2	76.8	22.6	53.2	35.3	7.8	.121	.405	.206	.061	1.44	4.55	2.42	0.75
Fort Smith, Ark	59.4	77.6	62.3	37.8	63.3	73.7	69.3	71.9	45.1	67.8	50.3	29.4	.300	.680	.364	.162	3.42	7.87	4.15	1.92
Galveston, Tex	69.5	83.8	73.7	54.5	74.3	71.7	74.1	81.9	61.7	73.4	61.5	49.7	.540	.822	.606	.356	6.05	8.93	6.68	4.09
Grand Haven, Mich	40.8	64.7	48.5	24.1	70.6	77.9	77.2	81.9	31.1	57.8	41.3	10.9	.174	.470	.260	.107	2.04	5.24	3.01	1.20
Grant, Fort, Ariz	57.5	50.6	60.0	43.0	38.1	46.3	41.3	55.7	28.7	50.6	34.2	27.3	.158	.368	.229	.148	1.84	4.15	1.97	1.76
Hatteras, N. C	56.1	77.4	64.7	44.9	79.7	80.6	84.1	85.4	49.4	70.6	59.4	42.2	.356	.771	.507	.269	4.07	8.13	5.66	3.07
Helena, Mont	41.5	66.1	43.2	20.0	74.4	59.7	65.8	84.5	33.5	50.9	31.6	14.9	.192	.372	.178	.085	2.24	4.23	2.08	1.04
Huron, Dak	40.9	66.7	43.8	10.8	68.2	74.8	69.4	69.9	30.6	57.7	33.5	1.1	.171	.477	.192	.045	1.81	5.38	2.24	0.57
Indianapolis, Ind	50.1	72.3	54.3	29.0	61.5	65.4	66.3	73.5	36.2	59.2	42.3	21.9	.213	.503	.270	.117	2.47	5.57	3.13	1.41
Indianola, Tex	70.5	82.7	73.8	54.1	79.4	77.7	80.3	82.4	63.3	74.4	66.8	48.8	.581	.830	.657	.345	6.46	9.23	7.13	3.95
Jacksonville, Fla	68.1	81,9	71.3	58.8	72.8	74.8	77.4	77.2	56.3	72.6	63.0	53.2	.453	.809	.575	.405	5.10	8.65	6.86	4.53
Keokuk, Iowa	49.7	72.3	52.3	22.7	65.4	71.0	68.8	74.2	37.6	61.6	41.2	16.0	.225	.548	.250	.089	2.60	6.05	2.97	1.09
Key West, Fla	77.1	84.8	79.1	72.3	70.7	71.1	78.4	82.2	66.5	73.7	71.6	66.4	.650	.830	.773	.648	7.13	8.99	8.38	7.13
Kitty Hawk, N. C	58.5	76.7	68.1	42.9	77.7	77.9	77.0	78.6	46.1	68.3	55.6	37.9	.312	.691	.442	.219	3.55	7.61	4.94	2.56
Knoxville, Tenn	57.3	75.0	57.3	39.7	65.2	71.4	73.5	78.2	43.9	63.6	51.0	33.2	.287	.587	.374	.189	3.30	6.46	4.23	2.21
La Mesilla, N. Mex	60.8	78.1	59.8	43.4	32.0	44.4	47.4	49.5	22.3	48.7	40.7	25.5	.119	.348	.254	.137	1.44	3.88	2.91	1.60
La Crosse, Wis	48.2	69.6	47.2	18.9	60.6	65.1	69.4	71.7	29.5	56.5	37.0	7.8	.163	.457	......	.061	1.92	5.11	2.56	0.77
Leavenworth, Kans	52.2	73.5	53.5	26.3	59.6	70.5	67.6	72.7	36.9	62.6	41.8	18.6	.219	.567	.265	.101	2.56	6.25	3.08	1.21
Lewiston, Idaho	51.6	72.2	50.0	28.5	62.4	41.9	62.8	76.0	37.6	45.1	36.5	20.1	.220	.300	.216	.107	2.56	3.42	2.51	1.30
Little Rock, Ark	61.3	78.4	64.1	43.2	65.8	75.8	71.9	72.1	48.7	60.8	53.9	35.3	.343	.715	.416	.206	3.88	7.87	4.70	2.42
Los Angeles, Cal	56.7	69.5	64.0	54.1	78.4	72.1	65.2	56.1	48.5	58.7	49.6	37.8	.341	.494	.355	.227	3.87	5.47	4.01	2.66
Louisville, Ky	54.2	74.5	58.0	36.9	62.9	69.5	69.9	66.8	40.7	63.0	47.7	28.5	.254	.575	.331	.156	2.91	6.36	3.74	1.84
Lynchburg, Va	55.1	76.4	58.3	38.4	55.6	61.7	67.8	63.8	37.7	61.0	46.2	28.2	.224	.536	.318	.154	2.60	5.95	3.55	1.81
Mackinaw City, Mich	32.7	61.1	44.8	19.2	66.0	74.8	76.0	72.4	22.4	52.2	37.3	11.6	.120	.391	.223	.073	1.44	4.40	2.56	0.88
Macon, Fort, N. C	57.6	77.7	64.5	45.3	80.1	82.2	82.3	82.8	51.0	71.5	58.5	42.1	.374	.771	.491	.267	4.23	8.88	5.47	3.07
Maginnis, Fort, Mont	38.1	61.1	39.4	19.6	50.9	41.9	56.2	51.4	20.9	35.6	23.5	3.7	......	.208	.126	.051	1.20	2.41	1.50	0.65
Marquette, Mich	32.8	60.4	43.1	17.1	62.5	68.6	69.0	67.3	20.7	49.0	32.8	6.6	.111	.347	.221	.058	1.81	3.94	2.06	0.71
Memphis, Tenn	60.4	78.5	63.1	42.1	65.9	71.9	72.1	73.1	47.7	68.1	53.0	35.1	.331	.687	.402	.204	3.73	7.49	4.61	2.38
Milwaukee, Wis	40.6	65.2	48.0	19.1	68.7	73.1	73.2	76.8	30.6	55.7	30.3	14.2	.171	.441	.241	.082	1.81	4.93	2.81	0.84
Mobile, Ala	68.5	82.3	70.6	58.6	71.2	74.0	71.3	77.3	55.4	72.3	59.6	48.1	.439	.792	.510	.336	4.94	8.63	5.66	3.81
Montgomery, Ala	63.8	80.6	68.4	51.0	68.9	69.2	66.5	72.6	50.0	68.4	54.9	44.0	.360	.694	.431	.288	4.09	7.63	4.86	3.30
Moorhead, Minn	33.8	63.6	38.9	—0.2	74.4	68.4	76.2	87.7	25.5	52.0	31.2	—3.5	.137	.388	.175	.036	1.63	4.38	2.04	0.43
Mount Washington, N. H	18.3	45.0	29.2	4.1	91.9	91.5	88.6	86.5	16.1	43.2	26.0	1.1	......	.279	.140	.045	1.09	3.18	1.67	0.57
Nashville, Tenn	57.8	75.6	60.9	40.5	65.9	75.1	75.5	75.5	45.2	60.3	52.4	34.9	.301	.645	.393	.202	3.42	7.13	4.45	2.88
New Haven, Conn	43.5	66.9	50.4	26.8	67.0	72.7	72.2	71.2	32.0	58.8	41.1	18.7	.181	.517	.291	.121	2.12	5.47	2.96	0.98
New London, Conn	44.7	68.8	52.0	29.4	70.0	75.3	76.2	71.2	34.7	60.0	44.8	21.8	......	......	......	.121	2.50	5.90	3.36	1.16

Table showing the mean temperature, relative humidity, dew-point, cloudiness, maximum, minimum, and daily range of temperature, vapor tension, and absolute humidity, for each of the four seasons, at stations of the Signal Service, United States Army—Continued.

Stations.	1883.																			
	Mean temperature.				Mean relative humidity.				Mean dew-point.				Mean vapor tension.				Mean absolute humidity.			
	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.
	°	°	°	°					°	°	°	°								
New Orleans, La	69.1	82.5	72.8	57.9	69.7	72.5	70.8	69.7	57.7	72.1	61.5	49.9	.477	.787	.546	.359	5.24	8.52	6.04	4.08
New York, N. Y	46.4	71.2	53.9	30.5	68.2	69.2	69.9	77.1	35.4	59.7	43.4	24.2	.207	.508	.281	.161	2.41	5.66	3.29	1.09
Norfolk, Va	55.6	77.6	62.1	42.2	68.9	72.0	75.5	73.9	44.5	67.0	53.8	35.9	.293	.661	.410	.211	3.48	7.25	4.60	2.46
North Platte, Nebr	45.8	69.8	47.6	29.3	66.6	69.0	68.7	77.2	33.9	57.9	36.4	13.0	.095	.480	.215	.078	2.29	5.38	1.70	0.97
Olympia, Wash	48.7	60.7	50.3	37.3	81.3	60.7	82.6	82.8	42.8	46.3	45.0	31.3	.275	.314	.299	.176	3.12	3.62	3.42	2.08
Omaha, Nebr	48.5	72.0	49.8	19.4	63.1	71.1	72.7	66.4	35.2	61.3	40.7	11.2	.205	.542	.254	.071	2.38	6.05	2.91	0.88
Oswego, N. Y	39.7	66.1	49.7	26.5	70.0	73.7	69.7	70.2	30.2	57.0	39.7	17.4	.168	.465	.244	.095	1.97	5.20	2.80	1.15
Palestine, Tex	65.5	80.3	68.1	47.3	66.8	71.2	68.8	67.8	52.6	69.4	56.0	37.7	.396	.718	.449	.226	4.45	7.85	5.03	2.70
Pensacola, Fla	66.4	81.1	70.6	55.3	74.0	78.2	71.8	77.7	56.7	73.8	59.6	49.9	.460	.819	.510	.359	5.10	8.93	5.66	4.08
Philadelphia, Pa	50.0	73.9	55.7	34.2	75.5	83.2	79.0	71.5	42.1	68.2	48.9	27.1	.268	.659	.346	.147	3.09	7.49	3.95	1.74
Pike's Peak, Colo	14.9	36.4	20.1	3.1	83.9	75.5	78.7	81.3	10.7	28.7	14.5	—1.0	.060	.158	.083	.041	0.86	1.84	1.02	0.51
Pioche, Nev	44.7	69.0	49.1	30.6	40.2	37.5	42.9	55.5	18.7	37.0	24.5	15.6	.101	.220	.131	.088	1.21	2.56	1.57	1.06
Pittsburg, Pa	48.5	70.9	54.9	31.7	66.4	70.1	70.2	76.2	36.5	59.6	44.5	27.0	.216	.510	.293	.146	2.51	5.60	3.36	1.74
Port Huron, Mich	37.4	64.6	47.4	20.0	76.9	77.2	77.9	85.7	30.2	56.7	40.8	17.0	.168	.460	.250	.094	1.97	5.10	2.91	1.13
Portland, Me	42.8	68.0	49.8	25.8	60.4	69.3	69.7	66.8	29.1	56.8	39.5	15.5	.160	.462	.242	.087	1.89	5.20	2.80	1.06
Portland, Oreg	52.3	64.4	52.8	38.8	71.0	65.4	80.0	79.3	42.2	51.5	45.9	31.2	.269	.381	.309	.175	3.02	4.30	3.55	2.08
Prescott, Ariz	50.6	69.8	52.3	36.8	47.5	48.9	47.1	58.1	27.4	45.8	30.1	23.6	.149	.308	.167	.126	1.77	3.55	1.97	1.50
Provincetown, Mass	41.0	68.1	51.5	30.2	73.8	74.6	75.3	75.4	33.7	58.9	43.4	23.6	.193	.498	.281	.126	2.24	5.56	3.23	1.50
Red Bluff, Cal	59.6	81.7	61.2	44.6	59.3	34.4	55.8	69.9	42.8	47.4	41.9	33.4	.275	.327	.266	.191	3.12	3.73	3.07	2.24
Rio Grande City, Tex	76.1	85.0	73.3	60.7	69.3	65.4	67.6	69.5	63.5	69.9	62.5	54.1	.585	......	......	......	6.46	7.99	5.05	4.70
Rochester, N. Y	43.4	68.8	49.6	25.8	68.2	66.6	72.0	79.0	31.1	55.5	41.0	21.2	.164	.441	.266	.113	2.04	4.94	3.07	1.35
Roseburg, Oreg	52.3	64.7	51.9	39.8	66.8	57.9	75.9	79.0	40.4	48.0	43.8	32.8	.251	.335	.286	.183	3.01	3.81	3.81	2.16
Sacramento, Cal	58.5	72.4	60.1	45.4	68.9	58.4	68.8	77.8	47.3	55.7	48.7	37.5	.326	.444	.343	.224	3.74	4.94	3.95	2.61
Saint Louis, Mo	52.0	73.6	57.3	28.9	81.1	75.0	71.2	84.8	45.7	64.2	47.1	25.7	.307	.600	.324	.138	3.47	6.57	3.68	1.63
Saint Paul, Minn	40.6	67.3	44.8	9.7	62.7	70.7	68.0	77.5	27.9	56.5	34.1	3.9	.152	.457	.196	.051	1.81	5.11	2.29	0.64
Saint Vincent, Minn	29.5	61.0	35.5	—3.5	77.0	76.3	79.9	89.0	22.2	52.4	29.5	—7.5	.119	.393	.163	.030	1.41	4.45	1.92	0.29
Salt Lake City, Utah	49.9	74.3	51.5	28.0	46.9	32.9	49.4	56.5	29.0	41.7	31.8	14.1	.112	.264	.179	.082	1.89	3.01	2.12	1.00
San Diego, Cal	58.5	68.1	63.4	54.3	71.6	75.6	69.2	61.9	48.7	59.7	51.8	40.1	.343	.512	.385	.249	3.87	5.66	4.38	2.86
Sandusky, Ohio	48.4	71.1	53.9	31.1	69.4	68.8	72.1	76.1	34.9	58.0	44.5	23.6	.202	.482	......	.142	2.38	5.38	3.56	1.67
Sandy Hook, N. J	46.5	72.4	55.2	31.4	73.5	72.0	73.1	79.8	37.8	62.1	46.1	26.0	.229	.557	.312	.140	2.60	6.15	3.55	1.75
San Francisco, Cal	54.1	58.9	57.6	48.8	77.7	80.1	78.8	75.3	46.8	52.2	50.4	40.4	.320	.391	.366	.251	3.68	4.45	4.14	2.91
Savannah, Ga	65.8	82.1	68.1	55.0	63.7	71.2	73.6	68.9	51.9	71.1	58.4	46.7	.386	.769	.492	.319	4.38	8.25	5.47	3.61
Shaw, Fort, Mont	40.0	61.7	40.1	20.6	61.8	52.1	65.7	68.9	26.0	41.3	27.7	9.1	.140	.260	.151	.065	1.67	3.01	1.77	0.81

Shreveport, La	66.2	81.9	64.9	49.0	67.6	70.4	72.2	72.7	54.4	69.0	57.1	40.4	.....	.708	.467	.251	4.77	7.74	5.20	2.91
Sill, Fort, Ind. T	61.5	79.4	60.7	39.8	59.5	68.8	64.0	65.8	44.2	64.4	48.0	28.1	.288	.610	.335	.154	3.31	6.68	3.81	1.81
Smithville, N. C	58.8	78.9	64.6	47.5	77.8	77.3	79.2	82.5	51.2	70.9	57.6	44.1	.377	.755	.475	.289	4.30	8.25	5.28	3.30
Spokane Falls, Wash	47.4	68.4	47.0	25.8	71.1	47.7	70.7	82.9	37.0	45.3	36.9	19.4	.220	.302	.219	.104	2.56	3.48	2.56	1.26
Springfield, Ill	50.9	71.7	53.6	27.0	63.2	60.9	66.6	60.9	37.9	60.0	41.5	18.3	.228	.529	.262	......	2.66	5.86	3.01	1.40
Stockton, Fort, Tex	62.3	79.4	62.8	43.5	60.4	58.8	66.2	58.9	45.7	61.5	49.2	29.3	.307	.346	.350	.162	3.48	6.05	3.95	1.92
Santa Fé, N. Mex	46.9	66.4	48.4	30.1	36.1	42.6	44.9	52.1	18.2	40.7	23.9	16.8	.099	.254	.128	.091	1 19	3.74	1.54	1.10
Thomas, Camp, Ariz	60.8	86.8	61.1	43.2	47.4	42.5	44.5	69.6	36.3	52.9	36.8	33.4	.214	.401	.218	.191	2.50	4.54	3.51	2.24
Toledo, Ohio	45.0	70.8	52.2	26.9	59.7	66.9	37.6	70.6	31.0	58.5	41.1	10.3	.173	.491	.258	.104	2.04	5.47	2.97	1.26
Vicksburg, Miss	64.8	80.7	68.3	50.1	65.2	72.6	70.0	69.6	51.7	70.3	57.0	41.5	.384	.740	.465	.262	4.30	8.12	5.20	3.01
Visalia, Cal	50.7	77.4	57.9	45.2	55.6	44.8	66.3	70.5	41.5	51.9	45.0	35.2	.262	.386	.299	.205	3.01	4.38	3.43	2.38
Washington, D. C	50.7	74.4	56.4	33.7	68.8	69.0	74.1	75.5	39.5	62.4	47.5	27.6	.242	.562	.328	.150	2.81	6.25	3.78	1.76
West Las Animas, Colo	49.6	72.4	50.7	23.7	46.3	48.9	53.4	61.0	24.4	47.7	29.9	12.3	.131	.331	.166	.079	1.56	3.78	1.97	0.93
Wilmington, N. C	60.4	79.0	65.0	49.3	71.6	76.1	75.9	75.9	50.1	70.2	56.4	42.9	.368	.737	.455	.276	4.09	8.13	5.10	3.18
Winnemucca, Nev	44.0	69.8	45.0	27.9	52.0	28.6	52.9	65.5	24.5	30.1	25.7	17.5	.131	.167	.138	.096	1.56	1.97	1.64	1.16
Yankton, Dak	42.3	69.8	46.6	14.5	63.3	70.9	70.3	64.8	30.9	59.3	36.1	8.5	.178	.505	.212	.068	2.00	5.66	2.47	0.78
Yuma, Ariz	69.6	90.1	71.8	55.1	49.1	50.8	42.8	47.0	46.9	67.3	44.2	32.8	.321	.696	.290	.180	3.68	7.37	3.31	2.21

Table showing the mean temperature, relative humidity, dew-point, cloudiness, maximum, minimum, and daily range of temperature, vapor tension, and absolute humidity, for each of the four seasons, at stations of the Signal Service, United States Army—Continued.

Stations.	1883.																			
	Mean temperature.				Mean relative humidity.				Mean dew-point.				Mean vapor tension.				Mean absolute humidity.			
	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.
	°	°	°	°					°	°	°	°								
New Orleans, La	69.1	82.5	72.8	57.9	69.7	72.5	70.8	69.7	57.7	72.1	61.5	49.9	.477	.787	.546	.359	5.24	8.52	6.04	4.08
New York, N. Y	46.4	71.2	53.9	30.5	68.2	69.2	69.9	77.1	35.4	59.7	43.4	24.2	.207	.508	.281	.161	2.41	5.66	3.29	1.09
Norfolk, Va	55.6	77.6	62.1	42.2	68.9	72.0	75.5	73.9	44.5	67.0	53.3	35.9	.293	.661	.410	.211	3.48	7.25	4.60	2.46
North Platte, Nebr	45.8	69.8	47.6	29.3	66.6	69.0	68.7	77.2	33.9	57.9	36.4	18.0	.095	.480	.215	.078	2.29	5.38	1.70	0.97
Olympia, Wash	48.7	60.7	50.3	37.3	81.3	60.7	82.6	82.3	42.8	46.3	45.0	31.3	.275	.314	.299	.176	3.12	3.62	3.42	2.08
Omaha, Nebr	48.5	72.0	49.8	19.4	63.1	71.1	72.7	66.4	35.2	61.3	40.7	11.2	.205	.542	.254	.071	2.38	6.05	2.91	0.88
Oswego, N. Y	39.7	66.1	49.7	26.5	70.0	73.7	69.7	70.2	30.2	57.0	39.7	17.4	.168	.465	.244	.095	1.97	5.20	2.80	1.15
Palestine, Tex	65.5	80.3	68.1	47.3	66.8	71.2	68.8	67.8	52.6	69.4	56.0	37.7	.396	.718	.449	.226	4.45	7.85	5.08	2.70
Pensacola, Fla	66.4	81.1	70.6	55.3	74.0	78.2	71.3	77.7	56.7	73.3	59.6	49.9	.460	.819	.510	.359	5.10	8.93	5.66	4.08
Philadelphia, Pa	50.0	73.9	55.7	34.2	75.5	83.2	79.0	71.5	42.1	68.2	48.9	27.1	.268	.659	.346	.147	3.09	7.49	3.95	1.74
Pike's Peak, Colo	14.9	36.4	20.1	3.1	83.9	75.5	78.7	81.3	10.7	28.7	14.5	—1.0	.060	.158	.083	.041	0.86	1.84	1.02	0.51
Pioche, Nev	44.7	69.0	49.1	30.6	40.2	37.5	42.9	55.5	18.7	37.0	24.5	15.6	.101	.220	.131	.088	1.21	2.56	1.57	1.06
Pittsburg, Pa	48.5	70.9	54.9	31.7	66.4	70.1	70.2	76.2	36.5	59.6	44.5	27.0	.216	.510	.293	.146	2.51	5.60	3.36	1.74
Port Huron, Mich	37.4	64.6	47.4	20.0	76.9	77.2	77.9	85.7	30.2	56.7	40.3	17.0	.168	.460	.250	.094	1.97	5.10	2.91	1.13
Portland, Me	42.8	68.0	49.8	25.3	60.4	69.3	69.7	66.8	29.1	56.8	39.5	15.5	.160	.462	.242	.087	1.89	5.20	2.80	1.06
Portland, Oreg	52.3	64.4	52.8	38.8	71.0	65.4	80.0	79.3	42.2	51.5	45.9	31.2	.269	.381	.309	.175	3.02	4.30	3.55	2.08
Prescott, Ariz	50.6	69.8	52.3	36.8	47.5	48.9	47.1	58.1	27.4	45.8	30.1	23.6	.149	.308	.167	.126	1.77	3.55	1.97	1.50
Provincetown, Mass	41.0	68.1	51.5	30.2	73.8	74.6	75.3	75.4	33.7	58.9	43.4	23.6	.193	.498	.281	.126	2.24	5.56	3.23	1.50
Red Bluff, Cal	59.6	81.7	61.2	44.6	59.3	34.4	55.8	69.9	42.8	47.4	41.9	33.4	.275	.327	.266	.191	3.12	3.73	3.07	2.24
Rio Grande City, Tex	76.1	85.0	73.8	60.7	69.3	65.4	67.6	69.5	63.5	69.9	62.5	54.1	.585	......	......	......	6.46	7.99	5.05	4.70
Rochester, N. Y	43.4	68.8	49.6	25.8	68.2	66.6	72.0	79.0	31.1	55.5	41.0	21.2	.164	.441	.266	.113	2.04	4.94	3.07	1.35
Roseburg, Oreg	52.3	64.7	51.9	39.8	66.8	57.9	75.9	79.0	40.4	48.0	48.8	32.3	.251	.335	.286	.183	3.01	3.81	3.31	2.16
Sacramento, Cal	58.5	72.4	60.1	45.4	68.9	58.4	68.8	77.8	47.3	55.7	48.7	37.5	.326	.444	.343	.224	3.74	4.94	3.95	2.61
Saint Louis, Mo	52.0	73.6	57.3	28.9	81.1	75.0	71.2	84.8	45.7	64.2	47.1	25.7	.307	.600	.324	.138	3.47	6.57	3.68	1.63
Saint Paul, Minn	40.6	67.3	44.8	9.7	62.7	70.7	68.0	77.5	27.9	56.5	34.1	3.9	.152	.457	.196	.051	1.81	5.11	2.29	0.64
Saint Vincent, Minn	29.5	61.0	35.5	—3.5	77.0	76.3	79.9	89.0	22.2	52.4	29.5	—7.5	.110	.393	.163	.080	1.41	4.45	1.92	0.29
Salt Lake City, Utah	49.9	74.3	51.5	28.0	46.9	32.9	49.4	56.5	29.0	41.7	31.8	14.1	.112	.264	.179	.082	1.39	3.01	2.12	1.00
San Diego, Cal	58.5	68.1	63.4	54.3	71.6	75.6	69.2	61.9	48.7	59.7	51.8	40.1	.343	.512	.385	.249	3.87	5.66	4.38	2.86
Sandusky, Ohio	48.4	71.1	53.9	31.1	69.4	68.8	72.1	76.1	34.9	58.0	44.5	23.6	.202	.482	......	.142	2.38	5.38	3.56	1.67
Sandy Hook, N. J	46.5	72.4	55.2	31.4	73.5	72.0	73.1	79.8	37.8	62.1	46.1	26.0	.229	.557	.312	.140	2.60	6.15	3.55	1.75
San Francisco, Cal	54.1	58.9	57.6	48.8	77.7	80.1	78.8	75.3	46.8	52.2	50.4	40.4	.320	.391	.366	.251	3.68	4.45	4.14	2.91
Savannah, Ga	65.8	82.1	68.1	55.0	63.7	71.2	73.6	68.9	51.9	71.1	58.4	46.7	.386	.769	.492	.319	4.38	8.25	5.47	3.61
Shaw, Fort, Mont	40.0	61.7	40.1	20.6	61.8	52.1	65.7	63.9	26.0	41.3	27.7	9.1	.140	.260	.151	.065	1.67	3.01	1.77	0.81

Shreveport, La	66.2	81.9	64.9	49.0	67.6	70.4	72.2	72.7	54.4	69.0	57.1	40.4	.....	.708	.467	.251	4.77	7.74	6.20	2.91
Sill, Fort, Ind. T	61.5	79.4	60.7	39.3	59.5	68.8	64.0	65.8	44.2	64.4	48.0	28.1	.288	.610	.335	.154	3.31	6.68	3.81	1.81
Smithville, N. C	58.8	78.9	64.6	47.5	77.8	77.3	79.2	82.5	51.2	70.9	57.6	44.1	.377	.755	.475	.289	4.30	8.25	5.28	3.30
Spokane Falls, Wash	47.4	68.4	47.0	25.8	71.1	47.7	70.7	82.9	37.0	45.3	36.9	19.4	.220	.302	.219	.104	2.56	3.48	2.56	1.38
Springfield, Ill	50.9	71.7	58.6	27.0	68.2	69.9	66.6	69.9	37.9	60.0	41.5	18.3	.228	.529	.263	......	2.66	5.86	3.01	1.49
Stockton, Fort, Tex	62.8	79.4	62.8	43.5	60.4	58.8	66.2	58.9	45.7	61.5	49.2	29.3	.307	.346	.350	.162	3.48	6.05	2.95	1.92
Santa Fé, N. Mex	46.9	66.4	48.4	30.1	36.1	42.6	44.9	52.1	18.2	40.7	23.9	16.8	.099	.254	.128	.091	1 19	3.74	1.54	1.10
Thomas, Camp, Ariz	60.8	86.8	61.1	43.2	47.4	42.5	44.5	69.6	36.3	52.9	36.8	33.4	.214	.401	.218	.191	2.50	4.54	2.51	2.24
Toledo, Ohio	45.0	70.8	52.2	26.9	59.7	66.9	37.6	70.6	31.0	58.5	41.1	19.3	.173	.491	.258	.104	2.04	5.47	2.97	1.26
Vicksburg, Miss	64.8	80.7	68.3	50.1	65.2	72.6	70.0	69.6	51.7	70.3	57.0	41.5	.384	.740	.465	.262	4.30	8.12	5.20	3.01
Visalia, Cal	59.7	77.4	57.9	45.2	55.6	44.8	66.3	70.5	41.5	51.9	45.0	35.2	.262	.386	.299	.205	3.01	4.38	3.43	2.38
Washington, D. C	50.7	74.4	56.4	33.7	68.3	69.0	74.1	75.5	39.5	62.4	47.5	27.6	.242	.562	.328	.150	2.81	6.25	3.78	1.76
West Las Animas, Colo	49.6	72.4	50.7	23.7	46.3	48.9	53.4	61.0	24.4	47.7	29.9	12.3	.131	.331	.166	.079	1.56	3.73	1.97	0.98
Wilmington, N. C	60.4	79.0	65.0	49.3	71.6	76.1	75.9	75.9	50.1	70.2	56.4	42.9	.368	.737	.455	.276	4.09	8.13	5.10	3.18
Winnemucca, Nev	44.0	69.8	45.0	27.9	52.0	28.6	52.9	65.5	24.5	30.1	25.7	17.5	.131	.167	.138	.096	1.56	1.97	1.64	1.16
Yankton, Dak	48.3	69.8	46.6	14.5	63.3	70.9	70.3	64.8	30.9	59.3	36.1	8.5	.173	.505	.212	.063	2.00	5.66	2.47	0.78
Yuma, Ariz	69.6	90.1	71.3	55.1	49.1	50.8	42.8	47.0	46.9	67.3	44.2	32.8	.321	.695	.290	.169	3.63	7.37	3.31	2.21

APPENDIX 10.

List of voluntary observers who have forwarded monthly reports to the Chief Signal Officer during the year ending June 30, 1884.

Name of observer.	Post-office.	County.	State or Territory.
Allen, Joseph H	Elk Knob	Watauga	North Carolina.
Arden, Thomas B	Garrison	Putnam	New York.
Adriance, Charles E	Hector	Schuyler	Do.
Altaffer, J. M	Independence	Montgomery	Kansas.
Alden, Thomas E	Rising Sun	Ohio	Indiana.
Andrews, Luman	Southington	Hartford	Connecticut.
Anderson, Dr. W. W	Stateburg	Sumter	South Carolina.
Abbott, Dr. E. K	Salinas City	Monterey	California.
Briggs, John	Albany	Linn	Oregon.
Bryant, J. M	Andersonville	Sumter	Georgia.
Beloit College	Beloit	Rock	Wisconsin.
Bear, John P	Charlestown	Suffolk	Massachusetts.
Baldwin, A. L	Bethel	Fairfield	Connecticut.
Boggs, W. R	Brevard	Transylvania	North Carolina.
Barney, Ahira	Bristol	Grafton	New Hampshire.
Bennett, George	Bandon	Coos	Oregon.
Bryant, A. F	Clear Creek	Saunders	Nebraska.
Braly, Rev. S. H	Clarksville	Red River	Texas.
Blanchard, O. A	Elmira	Stark	Illinois.
Breed, J. E	Embarras	Waupaca	Wisconsin.
Bell, Joseph	Franklin	Venango	Pennsylvania.
Boots, Dr. S. S	Greenfield	Hancock	Indiana.
Bennett, Dr. J. L	Gunnison	Gunnison	Colorado.
Bowen, F. W	Humboldt	Humboldt	Iowa.
Boies, A. H	Hudson	Lenawee	Michigan.
Brainerd, Dr. H. G	Independence	Buchanan	Iowa.
Baker, Dr. H. B	Lansing	Ingham	Michigan.
Beall, Dr. R. L	Lenoir	Caldwell	North Carolina.
Bullard, Ransom	Litchfield	Hillsdale	Michigan.
Beans, Thomas J	Moorestown	Burlington	New Jersey.
Blachly, C. P	Manhattan	Riley	Kansas.
Beebe, Arthur	Manistique	Schoolcraft	Michigan.
Bardsley, James G	Nephi	Juab	Utah.
Beecher, Charles	Saint Mark's	Wakulla	Florida.
Boyd, Joseph	Oskaloosa	Mahaska	Iowa.
Baker, Dr. J. L	Ottumwa	Wapello	Do.
Brendel, Fred	Peoria	Peoria	Illinois.
Bentley, David	Princeton	Colusa	California.
Becker, Rev. William	Prairie Du Chien	Crawford	Wisconsin.
Buck, Miss F. E	Red Willow	Red Willow	Nebraska.
Buck, Mrs. Royal	do	do	Do.
Bowman, Peter	Savannah	Ashland	Ohio.
Belville, Penton	Saint George's	New Castle	Delaware.
Ballou, Dr. N. E	Sandwich	De Kalb	Illinois.
Boynton, J. F	Syracuse	Onondaga	New York.
Boerner, Prof. Charles G	Vevay	Switzerland	Indiana.
Bartlett, E. B	Vermilion	Oswego	New York.
Betts, Prof. Arthur	Webster	Day	Dakota.
Calhoun, P. B	Austin	Wilson	Tennessee.
Carman, Charles W	Ann Arbor	Washtenaw	Michigan.
Cass, John J	Allison	Decatur	Kansas.
Casey, George	Auburn	Cayuga	New York.
Charbonnier, Prof. L. H	Athens	Clarke	Georgia.
Crump, M. H	Bowling Green	Warren	Kentucky.
Cochran, William P	Clay Centre	Clay	Kansas.
Culver, G. E	Vermilion	Clay	Dakota.
Couch, E. D	Contoocook	Merrimack	New Hampshire.
Currie, Neil	Currie	Murray	Minnesota.
Cole, Seward	Los Angeles	Los Angeles	California.
Coffin, Prof. S. J	Easton	Northampton	Pennsylvania.
Curtiss, G. G	Fallston	Harford	Maryland.
Conrad, Prof. C. P	Fayetteville	Washington	Arkansas.

List of voluntary observers who have forwarded monthly reports, &c.—Continued.

Name of observer.	Post-office.	County.	State or Territory.
Cutler, B. B	Heath	Franklin	Massachusetts.
Chase, Pliny E	Haverford College	Montgomery	Pennsylvania.
Chapin, A. B	Hastings	Dakota	Minnesota.
Colton, Prof. G. H	Hiram	Portage	Ohio.
Cooke, A. R	Indianola	Warren	Iowa.
Cornell University	Ithaca	Tompkins	New York.
Cutting, Hiram A	Lunenburg	Essex	Vermont.
Crosier, Adam	Laconia.	Harrison	Indiana.
Crawford, D. F. G	Allegheny	Allegheny	Pennsylvania.
Carpenter, Dr. William B	Leavenworth	Leavenworth	Kansas.
Crawford, E. A	Liberty Hill	Bienville	Louisiana.
Cheney, William	Minneapolis	Hennepin	Minnesota.
Clayton, H. H	Murfreesborough	Rutherford	Tennessee.
Collin, Prof. Alonzo	Mount Vernon	Linn	Iowa.
Cook, S. A	Milledgeville	Baldwin	Georgia.
Carlton College	Northfield	Rice	Minnesota.
Colt, H. H	Nora Springs	Floyd	Iowa.
Chapin, Adams	Poway	San Diego	California.
Cotton, Dr. D. B	Portsmouth	Scioto	Ohio.
Cutler, J. L	Quitman	Brooks	Georgia.
Chandler, Charles H	Ripon	Fond du Lac	Wisconsin.
Chandler, Dr. W. J	South Orange	Essex	New Jersey.
Caulkins, John S	Thornville	Lapeer	Michigan.
Carter, Rev. Dr. W. H	Tallahassee	Leon	Florida.
Clark, T. A	Weldon	Halifax	North Carolina.
Clark, A. C	Wausau	Marathon	Wisconsin.
Comstock, Prof. F. M	Le Roy	Genesee	New York.
Downs, Edward C	Alexandria	Hanson	Dakota.
Day, Theodore	Dyberry	Wayne	Pennsylvania.
Dunton, Lieut. W. R	Dorset	Bennington	Vermont.
Dickinson, Jas. P	Guttenberg	Clayton	Iowa.
Dixon, Geo	Hampton	Elizabeth City	Virginia.
Denker, A. H	Los Angeles	Los Angeles	California.
Diffenderffer, Wm. I	Lebanon	Laclede	Missouri.
Drake, W. T	Marshall	Calhoun	Michigan.
Dozier, William	Mattoon	Coles	Illinois.
Davis, Jacob	Rowe	Franklin	Massachusetts.
Dawson, William	Spiceland	Henry	Indiana.
Dunbar, R. E	South Bend	Saint Joseph	Do.
Dow, Roswell	Sycamore	De Kalb	Illinois.
Deckhant, William H	Tamaqua	Schuylkill	Pennsylvania.
Dewhurst, Rev. E	Voluntown	New London	Connecticut.
Doton, Hosea	Woodstock	Windsor	Vermont.
Deming, Hiram D	Wellsborough	Tioga	Pennsylvania.
Dorweiler, Philip	West Bend	Palo Alto	Iowa.
Eckstein, Rev. M.	Conception	Nodaway	Missouri.
Ellsworth, W. W	Hartford	Hartford	Connecticut.
Ellis, John	Marquette	Hamilton	Nebraska.
Elliott, J. C.	Swanwick	Perry	Illinois.
Eliason, W. A	Statesville	Iredell	North Carolina.
Fulton, W. L	Brunswick	Glynn	Georgia.
Friend, Charles W	Carson City	Ormsby	Nevada.
Fouch, Dr. A	College City	Colusa	California.
Fonda, W. A	Carroll	Carroll	Iowa.
Fox, F. E	Fall Brook	San Diego	California.
Fair, J. E	Harrisville	Alcona	Michigan.
Foss, E. T	Hydesville	Humboldt	California.
Failyer, Prof. G. H	Manhattan	Riley	Kansas.
Fuller, E. N	New Tacoma	Pierce	Washington.
Fernald, Prof. M. C	Orono	Penobscot	Maine.
Ferguson, W	Paterson	Passaic	New Jersey.
Fleming, John	Readington	Hunterdon	Do.
Farquhar, Allan	Sandy Springs	Montgomery	Maryland.
Ferris, B. F	Sunman	Ripley	Indiana.
Frick, Prof. J. H	Warrenton	Warren	Missouri.
Fortescue, J	York Factory		British America.
Gillingham, W	Accotink	Fairfax	Virginia.
Geddings, Dr. W. H	Aiken	Aiken	South Carolina.
Gray, Capt. A. W	Ainsworth	Franklin	Washington.
Grathwohl, John	Blooming Grove	Pike	Pennsylvania.
Gates, W. B	Burlington	Chittenden	Vermont.
Gillingham, M	Fallsington	Bucks	Pennsylvania.
Gardiner, Robert H	Gardiner	Kennebec	Maine.
Gibbs, George J	Grand Turk		British West Indies.
Gowey, H. D	North Lewisburg	Champaign	Ohio.
Gibson, John H	Salina	Saline	Kansas.
Gerrish, S. H	Sacramento	Sacramento	California.
Gray, J. W	Stockham	Hamilton	Nebraska.
Gordon, Dr. George G	Swartz Creek	Gennesee	Michigan.
Gregory, J. W	Sherlock	Finney	Kansas
Green, Dr. J. C	West Chester	Chester	Pennsylvania.

List of volunteer observers who have forwarded monthly reports, &c.—Continued.

Name of observer.	Post-office.	County.	State or Territory.
Goodwin, Miss E	Wytheville	Wythe	Virginia.
Gray, F. R	Yates Centre	Woodson	Kansas.
Hurlin, Rev. William	Antrim	Hillsborough	New Hampshire.
Horn, Dr. H. B	Atchison	Atchison	Kansas.
Hoskinson, R. M	Blakely	Kitsap	Washington.
Harvard College Observatory	Cambridge	Middlesex	Massachusetts.
Hammitt, J. W	College Hill	Hamilton	Ohio.
Hyde, G. A	Cleveland	Cuyahoga	Do.
Harper, George W	Cincinnati	Hamilton	Do.
Hassler, B. K	Chambersburg	Franklin	Pennsylvania.
Harrison, R. A	Caldwell	Essex	New Jersey.
Hoyt, Fred. C	Easton	Northampton	Pennsylvania.
Heaton, Isaac E	Fremont	Dodge	Nebraska.
Hill, William	Flemington	Hunterdon	New Jersey.
Hall, R. M	Feagin	Houston	Georgia.
Helm, Thomas B	Logansport	Cass	Indiana.
Hurley, John M	Lancaster	Grant	Wisconsin.
Hagensick, C. W	Lincoln	Lancaster	Nebraska.
Holden, Prof. E. S	Madison	Dane	Wisconsin.
Hartzler, J. A	Mottville	Saint Joseph	Michigan.
Hilton, John B	Paterson	Passaic	New Jersey.
Hering, Dr. C. J	Paramaribo		South America.
Hyslop, John	San Francisco	San Francisco	California.
Heacock, J. L	Quakertown	Bucks	Pennsylvania.
Hooker, P. J	Rapid City	Pennington	Dakota.
Harris, Thomas C	Raleigh	Wake	North Carolina.
Howe, Prof. J. L	Richmond	Madison	Kentucky.
Howe, Edmund D	Table Rock	Pawnee	Nebraska.
Hazen, L. S	Terre Haute	Vigo	Indiana.
Hills, Frank T	Vineland	Cumberland	New Jersey.
Hunter, Dr. T. C	Wabash	Wabash	Indiana.
Haywood, John	Westerville	Franklin	Ohio.
Hall, J. B	Worcester	Worcester	Massachusetts.
Hodge, Rev. F. B	Wilkes Barre	Luzerne	Pennsylvania.
Haller, Misses M. and J	Wytheville	Wythe	Virginia.
Heath, Dr. E. R	Wyandotte	Wyandotte	Kansas.
Houghton farm experimental station.	Mountainville	Orange	New York.
Iowa Agricultural College	Ames	Story	Iowa.
Ingram, Dr. J	Vineland	Cumberland	New Jersey.
Johnson, T. N	Canal Dover	Tuscarawas	Ohio.
Jackson, E. E	Columbia	Richland	South Carolina.
James, John W	Marengo	McHenry	Illinois.
Jordan, Dr. M. D. L	Milan	Gibson	Tennessee.
Josephs, W. B	New Market	Rockingham	New Hampshire.
Jones, Ira B	Neillsville	Clark	Wisconsin.
Jones, F. M.	Puerto de Luna	San Miguel	New Mexico.
Jones, Dr. E. U	Taunton	Bristol	Massachusetts.
Jackman, John W	Utica	Seward	Nebraska.
Keese, G. P	Cooperstown	Otsego	New York.
Kauffman, H. W	Dillingersville	Lehigh	Pennsylvania.
Kuhne, F. W	Fort Wayne	Allen	Indiana.
Kimball, P. R	Grafton	Grafton	New Hampshire.
Kirkwood, E	Glenwood	Rush	Indiana.
Kendall, J. S	Honey Grove	Fannin	Texas.
Knight, G. W	Inavale	Webster	Nebraska.
Kenmuir, J. P	Kansas City	Jackson	Missouri.
Knapp, J. G	Limona	Hillsborough	Florida.
Keeler, W. F	Mayport	Duval	Do.
Kent, J. C. and Miss E	Phillipsburg	Warren	New Jersey.
Kellogg, J. H	Battle Creek	Calhoun	Michigan.
Loomis, John C	Jeffersonville	Clark	Indiana.
Lueps, Misses C., E. and J	Manitowoc	Manitowoc	Wisconsin.
Lincoln, A. T	Marion	Smyth	Virginia.
Lay, Dr. James C	Pueblo	Pueblo	Colorado.
Lovewell, Miss B. E	Topeka	Shawnee	Kansas.
Luther, S. M	Garrettsville	Portage	Ohio.
Mell, Prof. P. H., jr	Auburn	Lee	Alabama.
Marshall, Gregory	Cresco	Howard	Iowa.
Miller, H. D	Drifton	Luzerne	Pennsylvania.
Montfort, B. de	Dannemora	Clinton	New York.
Mount Saint Mary's College	Emmitsburg	Frederick	Maryland.
McCready, Miss L. A	Fort Madison	Lee	Iowa.
Meehan, Thomas	Germantown	Philadelphia	Pennsylvania.
Moore, Nathan	Grampian Hills	Clearfield	Do.
McClintock, Frank	Grand Junction	Mesa	Colorado.
Moore, C. R	Johnsontown	Northampton	Virginia.
Munn, A	Kalamazoo	Kalamazoo	Michigan.
McDonogh Institute	McDonogh	Baltimore	Maryland.
Maxwell, S. A	Morrison	Whiteside	Illinois.
Metcalf, Dr. John G	Mendon	Worcester	Massachusetts.

List of volunteer observers who have forwarded monthly reports, &c.—Continued.

Name of observer.	Post-office.	County.	State or Territory.
Morris, Rev. John	Morriston	Davison	Dakota.
Martin, Horace	Stella	Richardson	Nebraska.
May, W. W	Salem	Washington	Indiana.
McPherson, William	San Rafael	Marin	California.
Micklem, J. H	Variety Mills	Nelson	Virginia.
Mikesell, Thomas	Wauseon	Fulton	Ohio.
McKenzie, Miss M. L	Peru	Nemaha	Nebraska.
Newbegin, J. D	Anna	Union	Illinois.
Neal, Dr. James C	Archer	Alachua	Florida.
Neely, T. S	Barnesville	Johnson	Texas.
Nickerson, W. W	Klamath Agency	Lake	Oregon.
Nelson, Dr. William H	Northport	Leelenaw	Michigan.
Nordberg, Adolph	Richardton	Stark	Dakota.
Neill, Thomas	Sandusky	Erie	Ohio.
Noll, A. B	Somerville	Somerset	New Jersey.
Newcomb, G. S	Westborough	Worcester	Massachusetts.
Nourse, H. D	Washington		District of Columbia.
Noonan, George E	Weaverville	Trinity	California.
Nichols Academy	Dudley	Worcester	Massachusetts.
Osborne, Dr. Thomas C	Cleburne	Johnson	Texas.
O'Brien, James F	Devil's Lake	Ramsey	Dakota.
Owsley, Dr. J. B	Jacksonborough	Butler	Ohio.
Otis, H. G	Lime Rock	Jackson	Alabama.
Osmond, Prof. I. T	State College	Centre	Pennsylvania.
Pearce, Thomas	Eola	Polk	Oregon.
Phillips, W. R	Evansville	Rock	Wisconsin.
Parrish, George W	Ellensburg	Yakima	Washington.
Parmelee, Francis D	Hillsdale	Hillsdale	Michigan.
Prosser, Charles S	Ithaca	Tompkins	New York.
Pierson, Rev. J	Ionia	Ionia	Michigan.
Purdue University	La Fayette	Tippecanoe	Indiana.
Parks, C. M	Logan	Cache	Utah.
Partrick, J. M	North Volney	Oswego	New York.
Parmelee, J. B	Nebraska City	Otoe	Nebraska.
Powrie, W	Sussex	Waukesha	Wisconsin.
Patterson, William	Salem	Salem	New Jersey.
Quarterman, Fred	Flushing	Queens	New York.
Quijano, Fiacro	Mazatlan		Mexico.
Robertson, P. D	Bedford	Livingston	Missouri.
Rush, Fred	Clinton	Vermillion	Indiana.
Reeves, Dr. James S	East Tawas	Iosco	Michigan.
Richardson, Charles F	Freehold	Monmouth	New Jersey.
Remington, C. V. S	Fall River	Bristol	Massachusetts.
Rose, Orpha E	Highlands	Macon	North Carolina.
Riggs, John P	Larchland	Warren	Illinois.
Rogers, F. M	Luling	Saint Charles	Louisiana.
Raffensperger, Dr. E. H	Marion	Marion	Ohio.
Rogers, Jesse D	Nile	Allegheny	New York.
Runge, C	New Ulm	Austin	Texas.
Rodman, Thomas R	New Bedford	Bristol	Massachusetts.
Roller, F. W	Newark	Essex	New Jersey.
Ross, W. J	Pretty Prairie	Reno	Kansas.
Rockwood, Prof. C. G	Princeton	Mercer	New Jersey.
Robertson, T. D	Rockford	Winnebago	Illinois.
Rocheleau, W. F	Randolph	Orange	Vermont.
Richardson, Dr. E. S	Reed City	Osceola	Michigan.
Russell, George W	Wellsburg	Brooke	West Virginia.
Rusk, Col. S. E	Bordentown	Burlington	New Jersey.
Snell, Miss S. C	Amherst	Hampshire	Massachusetts.
Samostz, Oscar	Austin	Travis	Texas.
Sherrerd, S	Belvidere	Warren	New Jersey.
Spooner, G. H	Blacksburg	Montgomery	Virginia.
Shriver, E. T	Cumberland	Allegheny	Maryland.
State Public School	Coldwater	Branch	Michigan.
Swezey, Goodwin D	Crete	Saline	Nebraska.
Silver, M. B	Coal Harbor		British Columbia.
Shaw, J	Chester	Olmstead	Minnesota.
Seltz, Charles	De Soto	Washington	Nebraska.
Sadler, Prof. H. E	Emporia	Lyon	Kansas.
Shahan, Charles C	Edgington	Rock Island	Illinois.
Scott, Thomas G	Forsyth	Monroe	Georgia.
State Agricultural College	Fort Collins	Larimer	Colorado.
Stienecker, H. W. E	Franklin	Sheboygan	Wisconsin.
Sweet, Fred	Grand Rapids	Kent	Michigan.
State School of Mines	Golden	Jefferson	Colorado.
Stucky, Dr. C. T	Helvetia	Randolph	West Virginia.
Stern, Jacob T	Logan	Harrison	Iowa.
Snow, Prof. F. H	Lawrence	Douglas	Kansas.
Smith, Henry D	Monticello	Jones	Iowa.
Shepard, C. W	Mendon	Saint Joseph	Michigan.
Sherman, W. B	Manchester	Delaware	Iowa.

List of volunteer observers who have forwarded monthly reports, &c.—Continued.

Name of observer.	Post-office.	County.	State or Territory.
Shaw, E	Maud	Kingman	Kansas.
Spilman, J. J	Pierce City	Lawrence	Missouri.
Sweeney, A. B	Polo	Ogle	Illinois.
Slade, Elisha	Somerset	Bristol	Massachusetts.
Slenker, Mrs. E. D	Snowville	Pulaski	Virginia.
Scribner, H. F. J	Strafford	Orange	Vermont.
Shepard, E. M	Springfield	Greene	Missouri.
Smith, Rev. D. W	Troy	Bradford	Pennsylvania.
Shriver, Howard	Wytheville	Wythe	Virginia.
Tillinghast, C. B	Albany	Albany	New York.
Todd, Prof. D. P	Amherst	Hampshire	Massachusetts.
Teele, Rev. A. K	Blue Hill	Norfolk	Do.
Truman, George S	Genoa	Nance	Nebraska.
Tutwiler, LL.D., H	Green Springs	Hale	Alabama.
Townsend, L. P	Hulmeville	Bucks	Pennsylvania.
Thommen, Gustave	Millville Depot	Pike	Do.
Trembley, Dr. J. B	Oakland	Alameda	California.
Turnbo, Silas C	Protem	Taney	Missouri.
Turner, Ernest	Point Pleasant	Tensas	Louisiana.
Tebbetts, G. P	Santa Barbara	Santa Barbara	California.
Upton, Prof. W	Providence	Providence	Rhode Island.
Vermillion, W. W	Curryville	Pike	Missouri.
Venable, Prof. F. P	Chapel Hill	Orange	North Carolina.
Voegeli, Adolphus	Des Moines	Polk	Iowa.
Van Inwegen, Charles F	Port Jervis	Orange	New York.
Williams College Observatory	Williamstown	Berkshire	Massachusetts.
Williams, Rev. C. F	Hoffman	Maury	Tennessee.
Wing, Miss M. E	Charlotte	Chittenden	Vermont.
West, Silas	Cornish	York	Maine.
Wilson, W. E	Cedar Rapids	Linn	Iowa.
Wadsworth, Dr. J. L. R	Collinsville	Madison	Illinois.
Williams, Dr. A. C	Elk Falls	Elk	Kansas.
Wigg, Dr. George	East Portland	Multnomah	Oregon.
Watson, Evan	Fort Scott	Bourbon	Kansas.
Went, E. C	Frankfort	Franklin	Kentucky.
Widman, Rev. C. M	Grand Coteau	Saint Landry	Louisiana.
Whitney, Charles E	Humphrey	Cattaraugus	New York.
Williamson, J. A	Johnstown	Fulton	Do.
Wright, W. F	Johnson	Nemaha	Nebraska.
Woodworth, C. E	Kiantone	Chautauqua	New York.
Wylie, William	Mount Forest		Canada.
Whittington, G	Mount Ida	Montgomery	Arkansas.
Walton, J. P	Muscatine	Muscatine	Iowa.
Woods, Mrs. Dr. A. G	Maynard	Fayette	Do.
Wild, Rev. E. P	Newport	Orleans	Vermont.
Walter, Frank	Ore Knob	Ashe	North Carolina.
Whitcomb, Dr. G. G	Ogreeta	Cherokee	Do.
West, Dr. Joseph O	Princeton	Worcester	Massachusetts.
Westerfield, J. H	Springfield	Conway	Arkansas.
Wait, S. E	Traverse City	Grand Traverse	Michigan.
Woodstock College	Woodstock	Howard	Maryland.
Willis, Prof. O. R	White Plains	Westchester	New York.
Wolfe, John H	Willington	Sumner	Kansas.
Washington Aqueduct	Receiving reservoir		District of Columbia.
	Distributing reservoir		
	Rock Creek		
	Great Falls		Maryland.
Winnipiseogee Lake Cotton and Woolen Manufacturing Company.	Lake Village	Belknap	New Hampshire.
	Weir's Bridge	do	
	Bristol	Grafton	
	Ashland	do	
	Woodstock	do	
	Belmont	Belknap	
	Wolfeborough	Carroll	
Watters, Dr. James	Westmoreland	Pattawatomie	Kansas.
Wetmore, E. L	Tucson	Pima	Arizona.
Yetter, William G	Catawissa	Columbia	Pennsylvania.
Yates, T. P	Factoryville	Tioga	New York.
Young, George R	Penn Yan	Yates	Do.
Young, A. J	Park City	Yellowstone	Montana.
Zimmerman, F. C	Bunker Hill	Macoupin	Illinois.
Zimmermann, I. R	Wentworth	Lake	Dakota.

APPENDIX 11.

List of military posts from which monthly meteorological reports have been received at the office of the Chief Signal Officer during the year ending June 30, 1884.

Post.	State or Territory.	Post.	State or Territory.
Abraham Lincoln, Fort	Dakota.	McHenry, Fort	Maryland.
Alcatraz Island	California.	Mojave, Fort	Arizona.
Angel Island	...do.	Monroe, Fort	Virginia.
Assinaboine, Fort	Montana.	Meade, Fort	Dakota.
Barrancas, Fort	Florida.	Mount Vernon Barracks	Alabama.
Benicia Barracks	California.	Mason, Fort	California.
Brady, Fort	Michigan.	Mitchell, Camp	Georgia.
Bowie, Fort	Arizona.	Niagara, Fort	New York.
Bidwell, Fort	California.	Niobrara, Fort	Nebraska.
Buford, Fort	Dakota.	Pembina, Fort	Dakota.
Bridger, Fort	Wyoming.	Plattsburg Barracks	New York.
Canby, Fort	Washington.	Preble, Fort	Maine.
Columbus, Fort	New York.	Presidio of San Francisco	California.
Concho, Fort	Texas.	Poplar River, Camp	Montana.
David's Island	New York.	Randall, Fort	Dakota.
Ellis, Fort	Montana.	Reno, Fort	Indian Territory.
Fred Steele, Fort	Wyoming.	Robinson, Fort	Nebraska.
Garland, Fort	Colorado.	Shaw, Fort	Montana.
Gaston, Fort	California.	Sisseton, Fort	Dakota.
Hale, Fort	Dakota.	Snelling, Fort	Minnesota.
Hamilton, Fort	New York.	Saint Francis Barracks	Florida.
Jefferson Barracks	Missouri.	Sully, Fort	Dakota.
Keogh, Fort	Montana.	Spokane, Fort	Washington.
Klamath, Fort	Oregon.	Totten, Fort	Dakota.
Lapwai, Fort	Idaho.	Townsend, Fort	Washington.
Leavenworth, Fort	Kansas.	Union, Fort	New Mexico.
Lowell, Fort	Arizona.	West Point	New York.
Lyon, Fort	Colorado.	Warren, Fort	Massachusetts.
Lewis, Fort	...do.	Wingate, Fort	New Mexico.
Madison Barracks	New York.	Washakie, Fort	Wyoming.
McDermit, Fort	Nevada.	Yates, Fort	Dakota.
McDowell, Fort	Arizona.		

APPENDIX 12.

INTERNATIONAL BULLETIN, CONTRIBUTORS TO DURING THE FISCAL YEAR ENDING JUNE 30, 1884.

In the execution of this important work, I have to acknowledge the valuable co-operation of the chiefs of the meteorological services of the different countries represented as follows:

Algeria and Tunis, by Brigadier General Béziat, commandant supérieur du génie in Algeria, and from January, 1884, by M. Thévenet, director of the meteorological service at the college of science of Algeria; Australia, by R. L. J. Ellery, director of the observatory at Melbourne, New South Wales; Austro-Hungary, by Prof. Dr. Julius Hann, director of the imperial and royal central meteorological institute at Vienna; Belgium, by J. C. Houzeau, director of the royal observatory at Brussels; Great Britain, by the meteorological council, London, Robert H. Scott, esq., F. R. S., secretary; Canada, by Charles Carpmael, A. M., F. R. A. S., director of the magnetic observatory at Toronto, and superintendent of the meteorological office of the Dominion of Canada; Cape Colony, by the meteorological commission of Cape Colony at Cape Town; Chili, by the authority of the secretary of public instruction, through Francisco Vidal Gomáz, president of the central meteorological office at Santiago; China, by Marc Dechevrens, S. J., director of the meteorological observatory at Zi Ka Wei; Denmark, by Captain N. Hoffmeyer, director of the royal Danish meteorological institute at Copenhagen; Egypt, by Albert Ismalun, director of the laboratoire Khédivial du Caire; France, by Prof. E. Mascart, director of the central meteorological office of France; Germany, by Prof. Dr. G. Neumayer, director of the German marine observatory at Hamburg; Greece, by Prof. Dr. Julius Schmidt, director of the royal observatory at Athens, to February 1, 1884, when he was succeeded by D. K. Kokkides; India, by H. F. Blanford, meteorological reporter to the Government of India at Calcutta; Italy, by His Excellency the minister of agriculture, industry and commerce, through Prof. P. Tacchini, director of the central meteorological office at Rome; Japan, by I. Arai, director of the imperial meteorological observatory at Tokei; Mauritius, by C. Meldrum, secretary of the meteorological society of Mauritius; Mexico, by authority of the secretary of public works, through Señor Mariano Bárcena, director of the central meteorological observatory at Mexico; the Netherlands, by Prof. Buys Ballot, director of the royal meteorological institute of the Netherlands, at Utrecht; Norway, by Prof. H. Mohn, director of the royal Norwegian meteorological institute at Christinia; Portugal, by J. C. de Brito Capello, director of the meteorological observatory of the Infante Dom Luiz at Lisbon; Russia, by Prof. H. Wild, director of the imperial central physical observatory of Russia at St. Petersburgh; Scotland, by Alexander Buchan, M. A., F. R. S. E., secretary of the Scottish meteorological society at Edinburgh; Spain, by Antonio Aguilar, director of the royal observatory at Madrid; Sweden, by Prof. R. Rubenson, director of the royal Swedish meteorological institute at Stockholm, and by Prof. H. H. Hildebrandsson, director of the meteorological observatory at Upsala; Switzerland, by Prof. E. Plantamour, director of the observatory at Geneva; Turkey, by A. Coumbary, Effendi, director of the central observatory at Constantinople, and F. Nimr, B. A., director of the Lee observatory (Syrian Protestant College) at Beirut; United States of Colombia, by Ensign R. K. Wright, U. S. Navy, in behalf of the General Interoceanic Canal Company, and the respective observers of each series.

The British naval series, furnished by the co-operation of the meteorological council, London, Robert H. Scott, Esq., F. R. S., secretary; Portuguese Navy, by J. C. de Brito Capello, director of the meteorological observatory of the Infante Dom Luiz at Lisbon; Swedish Navy, through E. Malmberg, director of the nautical meteorological bureau of Stockholm; United States Navy, by the honorable the Secretary of the Navy, through Commodore John G. Walker, U. S. N., chief of the Bureau of Navigation.

Series.	Number of stations reporting.	Series.	Number of stations reporting.
Algerian	11	Norwegian	5
Australian	3	Portuguese	8
Austro-Hungarian	13	Russian	43
Belgian	4	Scottish	2
British	32	Spanish	12
Canadian	42	Swedish	6
Cape Colony	3	Swiss	1
Chilian	7	Turkish	4
Chinese	4	United States of Colombia	2
Danish	9	United States sub-series	16
Egyptian	1		
French	46	Total foreign stations reporting	377
German	19	United States series	170
Greek	1		
Indian	23	Total stations reporting to June 30, 1884	547
Italian	18		
Japanese	22	Total stations reporting to June 30, 1883	506
Mauritius	1		
Mexican	13		
Netherlands	6	An increase of	41

The office has the co-operation of the following steamship lines:

Allan Line, A. Schumacher & Co., of Baltimore, and H. & A. Allen, of Boston, Mass., and Portland, Me., agents; American Line, Peter Wright & Sons, agents; Anchor Line, Henderson Bros., agents; Atlas Line, Pim, Forwood & Co., agents; Amsterdam Line, R. R. H. toe Laer, agent; Arrow Line, Simpson & Spence, agents; Atlantic Transportation Company of London, England; Boston and Halifax Line, F. W. Nickerson, agent; Bristol City Line, Arkell & Co., agents; Beaver Line, Seager Brothers, agents; Booth's Steamship Company, Booth & Co., agents; California and Mexican Steamship Company, J. Birmingham, agent; Castle Line, F. Skinner & Co., owners, London, England; Cromwell Line, Clark & Seaman, agents; Carr's Steamship Line; Donaldson Clyde Line, J. M. Brown & Co., agents; Edwards' Steamship Line, Geo. F. Bulley, agent; General Transatlantic Company, Louis de Bebian, agent; Guion Line, Williams & Guion, agents; Hamburg-American Packet Company, Kuhnhardt & Co., agents; Inman Line, John G. Dale, agent; Johnston Line, Patterson, Ramsey & Co., agents; Leyland Line, Thayer & Lincoln, agents; Lamport & Holt's Line, Lamport & Holt, Liverpool, England; Liverpool, Brazil and River Plate Steamship Company, Busk & Jevons, agents; Mallory Line, C. H. Mallory & Co., agents; Mediterranean and New York Steamship Company, Phelps Bros. & Co., agents; Merchants' Express Line, Funch, Edye & Co., agents; Merchants and Miners' Transportation Company, A. L. Huggins, agent; Merchants' Steamship Company, R. B. Borland, agent; Mississippi and Dominion Steamship Line, Flinn, Main & Montgomery, managing directors, Liverpool, England; Morgan Line, Bogart & Morgan, agents; Monarch Line, Patton, Vickers & Co., agents; New York, Havana and Mexican Mail Steamship Company, F. Alexandre & Sons, agents; New York and Cuba Mail Steamship Company, James E. Ward & Co., agents; National Line, F. W. J. Hurst, manager; North German Lloyd, A. Schumacher & Co., Baltimore, and Oelrichs & Co., agents, New York; Occidental and Oriental Steamship Company, Leland Sanford, president, San Francisco; Ocean Steamship Company, George Young, agent; Oregon Railway and Navigation Company, K. von Oterendorp, agent; Oregon Improvement Company, J. L. Howard, agent; Oceanic Steamship Company, ——; Pacific Coast Steamship Company, Goodall, Perkins & Co., agents; Pacific Mail Steamship Company, Williams, Dimond & Co., agents, San Francisco, and H. J. Bullay, superintendent, New York; Quebec Steamship Company, E. A. Outerbridge & Co., agents; Red D Line, Boulton, Bliss & Dallet, agents; Red Star Line, Peter Wright & Sons, agents, New York and Philadelphia; Rotterdam Line, Funch, Edye & Co., agents; Royal Mail Steam Packet Company, Sanderson & Son, agents; State Line, Austin, Baldwin & Co., agents; Thingvalla Line, Funch, Edye & Co., agents; Union Steamship Company, of Southampton, England; Warren Line, Warren & Co., agents; White Cross Line, Funch, Edye & Co., agents; White Star Line, R. J. Cortis, agent; Wilson Line, Sanderson & Son, agents; Winsor Line, R. B. Sampson, agent. Also the co-operation of the New York Herald Weather Service.

SUMMARY.

Total steamship lines reporting to June 30, 1884	57
Total steamship lines reporting to June 30, 1883	59
Vessels reporting in the British Navy	77
Vessels reporting in the Portuguese Navy	6
Vessels reporting in the Swedish Navy	3
Vessels reporting in the United States Navy	52
Marine reports furnished through the British meteorological office, number of vessels	40
Marine reports furnished through the New York Herald weather service, number of vessels	65
Steamships, sailing vessels, &c., reporting direct to this office	416
Total vessels taking observations to June 30, 1884	659
Total vessels taking observations to June 30, 1883	605
An increase of	54
Total land stations reporting to June 30, 1884	547
Total vessels, &c., reporting to June 30, 1884	659
Total stations reporting to June 30, 1884	1,206
Total stations reporting to June 30, 1883	1,111
An increase of stations over 1883	95

RECAPITULATION.

	1883.	1884.	Increase.
Land stations	506	547	41
Naval reports	124	138	14
Steamships and miscellaneous marine	481	521	40
Total	1,111	1,206	95

APPENDIX 13.

REPORT FOR THE YEAR ENDING JUNE 30, 1884, ON THE CHATTANOOGA SYSTEM OF FLOOD WARNINGS.

The special observations in connection with the Chattanooga system of flood warnings were resumed December 1, 1883, and continued until March 31, 1884, which period embraces the season during which dangerous floods are most likely to occur.

This system was originally organized and operated by the Iron, Coal and Manufacturers' Association of Chattanooga, Tenn., and, by request of the association, was transferred to the Signal Service during the autumn of 1882. Final arrangements were, however, not completed in time to put the system in operation before February 1, 1883.

Chattanooga is peculiarly liable to floods of great violence. There are between three and four millions of dollars invested in manufacturing interests, principally iron and steel works. At Rockwood, Tenn., distant about 95 miles by river from Chattanooga, the Roane Iron Company have half a million dollars invested in furnaces.

A height of 38 feet in the Tennessee River causes most factories to stop; a height of 50 feet is not unusual, especially during the winter months. The importance of timely warning of dangerous rises in the Tennessee River and its tributaries, above Chattanooga, is therefore apparent.

The Signal Service having perfected arrangements to take charge of the system, the following points were selected as stations of observation and report, covering the Tennessee River and its tributaries above Chattanooga, and embracing a drainage area of over 20,000 square miles, viz: Rockwood, Roane County, Tennessee; Kingston, Roane County, Tennessee; Charleston, Bradley County, Tennessee; Loudon, Loudon County, Tennessee; Knoxville, Tennessee; Clinton, Anderson County, Tennessee; Strawberry Plains, Jefferson County, Tennessee; Leadvale, Jefferson County, Tennessee.

With the exception of Strawberry Plains, the least important point, observers were secured at all of the above stations, and the first reports were made February 1, 1883. At the beginning of the present season reports began promptly December 1, 1883, and continued until March 31, 1884.

Each observer is supplied with a river-gauge, rain-gauge, and measuring-rod, also with the necessary blanks for reporting by mail and telegraph. Observations are taken daily (Sundays included), at 2 p. m., local time, and embrace height of river, amount of rainfall, state of weather, direction of wind, and depth of snow remaining on ground. The readings are noted on a postal card prepared for this purpose, and immediately mailed to the Signal Corps observer at Chattanooga. When the rise in river exceeds a fixed limit, or the rainfall equals or exceeds two inches, the observations are enciphered and telegraphed to Chattanooga.

Special reports are also made to the observer at Chattanooga of the closing and opening of navigation by the river freezing over and the breaking up of the ice, of the formation or breaking up of ice dams or other obstructions in the river, and of the presence of large quantities of floating ice or timber. When the river is approaching the danger line, and rising rapidly, the observer at Chattanooga is authorized to call for special telegraphic reports at 8 a. m. and 8 p. m. daily until the danger is past.

Upon the receipt of all regular and special reports at Chattanooga they are immediately bulletined at prominent points in the city, and in case of floods special reports are telephoned to the principal iron works, rolling mills, &c.

Of the great benefits derived from timely warnings of approaching floods there can be no doubt. The fact that a private association organized and operated a similar system at its own expense is sufficient proof of the importance attached to these reports. It is believed that increased efficiency of service and accuracy of observations were obtained by the reorganization of the system and placing it under the control of the Signal Service.

The following extracts from Sergeant Goulding's report are submitted in this connection:

"Danger line was passed on the night of March 7, but the observers had reported by telegraph the condition of the river at their respective stations, and abundant time was given for preparing for the inevitable high water. * * * The maximum of 43 feet was not reached until 2 a. m. of March 11. This is the highest point attained since the flood of 1875, which reached 54 feet. * * * It will be seen that three days' warning can be given of danger. * * * It has been difficult to reduce the benefits which have accrued from the flood signal service to a valuation in dollars and cents, but a low estimate of property saved would amount to $5,000, which is almost fifteen times what the service has cost during the past season. The service is highly appreciated in the community, and the esteem in which it is held is set forth in the extract furnished as Appendix B, from the memorial to Congress signed by the president of the Board of Trade and of the Coal, Iron and Manufacturers' Association of this city. * * * In the future development of the service it will be an easy matter to furnish other communities in the Tennessee Valley below us valuable information as to floods by mail or telegraph. Such information has been repeatedly solicited."

The Chattanooga Daily Times of March 10, 1884, speaking of the flood on that date, concludes as follows: "The efficiency and value of the flood-signals system has been clearly demonstrated in this tide. It has given accurate information, and the predictions were verified almost to the inch. Our community will support and encourage it with the heartiest good will."

F. M. M. BEALL,
Second Lieutenant, Signal Corps.

SIGNAL OFFICE, WASHINGTON,
August 27, 1884.

APPENDIX 14.

REPORT FOR THE YEAR ENDING JUNE 30, 1884, ON FROST WARNINGS.

The system of frost warnings for the benefit of the tobacco, sugar, and fruit growing districts, which was organized during the summer of 1882, was resumed at the beginning of the frost season in 1883. Additional points of distribution were established, and all centers notified in advance to prepare and arrange for the prompt handling and disseminating of messages. All stations selected to bulletin messages were supplied with the necessary blanks through the superintendents of the various railroads on which they are located, and arrangements were renewed with the Western Union Telegraph Company and the co-operating railroads for the prompt dispatch and publication of the warnings.

The system as now in operation consists of 26 centers to which frost warnings are sent direct from this office, and 763 stations receiving the warnings from the centers and publishing the same in the form of bulletins. Immediately upon the receipt of a frost message at a center the Signal Corps observer, or Western Union Company's manager where there is no signal station, copies the same on blanks previously prepared, and each addressed to the stations on one of the various railroads diverging from the center, and files the copies for transmission. When received at the stations the messages are at once bulletined by the operators.

Special messages are sent to a number of places for the benefit of neighboring points that cannot be reached by telegraph. These are distributed by mail or by special messengers, and in some instances by prearranged signals.

The tobacco-growing districts to which warning is sent embrace the western half of Massachusetts, the State of Connecticut, a small portion of Southern New York, the eastern half of Pennsylvania, Central Maryland and Virginia, the western halves of North Carolina and Tennessee, the State of Kentucky, Southern Ohio and Indiana, Eastern Missouri, and the southern portion of Central Wisconsin.

Cranberry interests are protected in Barnstable County, Massachusetts, and along the Camden and Atlantic Railroad in New Jersey.

Frost warnings for the benefit of sugar-growers are distributed in Southeastern Louisiana, and the fruit-growers of Northern Florida receive warnings from Jacksonville as a center. Special messages in the interest of sugar and fruit crops are sent to points in South Carolina, Tennessee, and Texas. A complete list of stations, classified according to centers of distribution and the various railroads on which they are located, was prepared by the telegraph division, and has been published as Instructions No. 83 of 1884. This list will greatly facilitate the annual arrangements for distributing frost warnings, and lessen the liability to errors and delays incidental to changes, between seasons, in observers or managers at centers.

Under the existing agreement between this office and the Western Union Telegraph Company, full rates are paid for frost messages from here to centers, and half rates from centers to the various stations.

The telegraph division, having charge of the distribution only, of frost warnings, has no data to report on the verification of or the benefits derived from the same.

Although the system of frost warnings is now complete, so far as the predictions are made and the information sent to the telegraph offices at the points named in Instructions No. 83 of 1884, yet I am not able to say whether the information, after getting to these telegraph offices, reaches that portion of the public for which it is intended. It is the promised duty of the operators to post this information at their offices. Granting that this is always done, the question then arises as to how many of these telegraph offices are visited by the farmer, the planter, or the fruit-grower.

The present condition of the appropriation for this purpose prevents this service from improving this condition of affairs, but it is hoped that the present system of State weather services will be developed to the extent that this office will only be required to furnish the information to these services and they to see to its proper dissemination.

F. M. M. BEALL,
Second Lieutenant, Signal Corps.

SIGNAL OFFICE,
Washington, August 27, 1884.

APPENDIX 15.

REPORT ON THE SYSTEM OF COTTON-REGION REPORTS FOR THE YEAR ENDING JUNE 30, 1884.

SIGNAL OFFICE, WAR DEPARTMENT,
Washington City, July 1, 1884.

To the CHIEF SIGNAL OFFICER OF THE ARMY,
Washington, D. C.:

SIR: I have the honor to submit the following report of the work done in Stations Division in connection with the system of cotton-region reports for the year ending June 30, 1884.

This system of reports is an arrangement made, with the co-operation of railroads and telegraph lines in the Southern States, by which reports of the rainfall and maximum and minimum temperatures are collected and disseminated throughout the commercial centers of the cotton region from April 1 to October 31 each year.

The stations are generally located on the railroad lines where the observations are made, and sent direct to the centers by wire.

The cotton-growing region is divided into districts.

The districts have been formed with reference to existing co-operating railroad lines to secure the best telegraphic facilities, and arranged to prevent overlapping of territory, which would produce errors in the preparation of mean temperatures and average rainfall.

Each district has a center for the concentration of reports, the name of which is used to designate the district.

The districts embrace the territory adjacent to more important cities where Signal Service stations are located.

Observations are made by agents and operators of the railroad authorities for rainfall and maximum and minimum temperatures simultaneously at 5 p. m. "central," or 6 p. m. "eastern," time, according to the location of the stations.

Similar observations are made by the Signal Service observers at all centers.

The rainfall and maximum and minimum temperatures are enciphered at the stations, and sent by telegraph to the centers of the districts to which the stations belong.

At the centers, the Signal Service observers, having collected all the reports from the stations of their districts so far as possible, make up the average rainfall and average maximum and minimum temperatures for the districts.

These are then enciphered and sent, at the 11 p. m. circuit hour, over the Washington and Lake City, the New Orleans and Augusta, and the New Orleans and Cincinnati circuits.

The reports thus received at Signal Service stations on these circuits are, after preparation of the bulletins for the information of the public, filed and preserved as office records.

The telegraphic means from cotton-region centers are made up from the reports of sub-stations received by the observer, whenever reports from one or more sub-stations are received.

The words "two," "three," "four," &c., are added to the cipher used in sending these reports over circuits to indicate the number of stations, including his own, used in making up the means.

If no reports are received from sub-stations, the central station sends its own report, and adds the word "one," to show that no reports were received.

To illustrate the method of sending reports over telegraphic circuits, take Savannah as a district center.

Savannah makes out a mean of the maximum temperatures, a mean of the minimum temperatures, and an average of the rainfall for the district, and sends this report, written on Form 203, over the Washington and Lake City circuit, as follows:

"Savannah, thirteen, firmly, vessel, radish." This translated means that in Savannah district, thirteen stations reporting, the mean of the maximum temperatures is 72 degrees, the mean of the minimum temperatures is 53 degrees, and the average rainfall is .13 of an inch.

Each of the other centers on the Washington and Lake City, the New Orleans and Augusta, and the New Orleans and Cincinnati circuits sends the report from that district over its own circuit.

The following-named stations also receive cotton-region reports with the 11 p. m. telegraphic observation: Charlotte, N. C.; Chattanooga, Tenn.; Cincinnati, Ohio; Louisville, Ky.; Nashville, Tenn.; Norfolk, Va.; Pensacola, Fla., and Washington, D. C.

Washington sends all reports to Baltimore, Philadelphia, New York City, and Boston.

Memphis sends all reports to Saint Louis.

Augusta transfers all reports received at that station over the Washington and Lake City circuit to the New Orleans and Augusta circuit, and all reports received over the New Orleans and Augusta circuit to the Washington and Lake City circuit.

New Orleans transfers all reports from the New Orleans and Augusta circuit to the New Orleans and Cincinnati circuit, and from the New Orleans and Cincinnati circuit to the New Orleans and Augusta circuit.

New Orleans sends reports from all centers to Galveston and Shreveport by special message.

Galveston sends its district report over the San Antonio and New Orleans circuit to New Orleans, where it is transferred to the New Orleans and Cincinnati and the New Orleans and Augusta circuits.

Memphis sends all reports to Saint Louis by special message.

The reports from Austin, Cuero, Dallas, Houston, Huntsville, Longview, Tyler, and Waco, Tex., are sent to New Orleans by special message from Galveston.

The Signal Service observer at each station at which cotton-region reports are received furnishes the local press copies for publication the next morning, and also bulletins them at the Cotton Exchange and other authorized places where they are of the most benefit to the public.

The following is a description of the forms used in connection with this work:

Form 138 is a manifold bulletin showing the average maximum and minimum temperatures and rainfall for the several districts for the past 24 hours, and is posted daily at each center in places most convenient to persons interested.

Form 138 A is also a manifold bulletin, and is used by the observers at the centers to show the maximum and minimum temperatures and rainfall at each station in their districts.

Form 144 A is used at each cotton-region station to record the maximum and minimum temperatures, rainfall, time of taking observation, and time of filing the report for transmission. The form is mailed to this office at the end of each month, and is used in the preparation of meteorological data.

Form 203 (card) is used by the observers at sub-stations in enciphering each observation, and is retained and filed as part of the station records.

Form "condition of instruments" (card) is used once each month by sub-stations in reporting the condition of meteorological instruments to centers.

Observations were continued during July, August, September, and October, 1883, there being 131 stations reporting—5 regular Signal Service stations and 126 special cotton-region stations—as will be seen by the following list:

District centers.	Sub-stations.
Atlanta, Ga	Calhoun, Ga.; Cartersville, Ga.; Dalton, Ga.; Gainesville, Ga.; Griffin, Ga.; Newnan, Ga.; Spartanburg, S. C.; Toccoa, Ga.; West Point, Ga.
Augusta, Ga	Allendale, S. C.; Athens, Ga.; Chester, S. C.; Columbia, S. C.; Columbus, Ga.; Covington, Ga.; Macon, Ga.; Madison, Ga.; Union Point, Ga.
Charleston, S. C	Branchville, S. C.; Hardeeville, S. C.; Jacksonborough, S. C.; Kingstree, S. C.; Saint George's, S. C.; Saint Matthew's, S. C.; Yemassee, S. C.
Galveston, Tex	Austin, Tex.; Beaumont, Tex.; Belton, Tex.; Corsicana, Tex.; Cuero, Tex.; Dallas, Tex.; Hearne, Tex.; Hempstead, Tex.; Houston, Tex.; Huntsville, Tex.; Longview, Tex.; Luling, Tex.; Orange, Tex.; *Palestine, Tex.; San Antonio, Tex.; Sour Lake, Tex.; Tyler, Tex.; Waco, Tex.; Weatherford, Tex.; Weimar, Tex.
Little Rock, Ark	Arkansas City, Ark.; Brinkley, Ark.; Devall's Bluff, Ark.; *Fort Smith, Ark.; Kensett, Ark.; Madison, Ark.; Malvern, Ark.; Monticello, Ark.; Paris, Tex.; Prescott, Ark.; Russellville, Ark.; Texarkana, Ark.; Walnut Ridge, Ark.
Memphis Tenn	Batesville, Miss.; Brownsville, Tenn.; Clarksville, Tenn.; Corinth, Miss.; Decatur, Ala.; Erin, Tenn.; Grand Junction, Tenn.; Grenada, Miss.; Hernando, Miss.; Milan, Tenn.; *Nashville, Tenn.; Paris, Tenn.; Scottsborough, Ala.; Tuscumbia, Ala.; Withe, Tenn.
Mobile, Ala	Aberdeen, Miss.; Columbus, Miss.; Macon, Miss.; Meridian, Miss.; Okolona, Miss.; State Line, Miss.; Waynesborough, Miss.
Montgomery, Ala	Birmingham, Ala.; Calera, Ala.; Demopolis, Ala.; Greenville, Ala.; Opelika, Ala.; Pine Apple, Ala.; Selma, Ala.; Talladega, Ala.; Tuscaloosa, Ala.; Uniontown, Ala.

District centers.	Sub-stations.
New Orleans, La	Alexandria, La.; Amite City, La.; Brookhaven, Miss.; Cheneyville, La.; Coushatta, La.; Franklin, La.; Morgan City, La.; New Iberia, La.; Natchitoches, La.; Pass Christian, Miss.; Scranton, Miss.; Terre Bonne, La.; Vermillionville, La.; Whiteville, La.
Savannah, Ga........	Albany, Ga.; Allapaha, Ga.; Bainbridge, Ga.; *Cedar Keys, Fla.; Eastman, Ga.; Fernandina, Fla.; Fort Gaines, Ga.; Jessup, Ga.; Live Oak, Fla.; Millen, Ga.; Quitman, Ga.; Smithville, Ga.; Thomasville, Ga.; Waldo, Fla.; Way Cross, Ga.
Vicksburg, Miss	Edwards, Miss.; Jackson, Miss.; Lake, Miss.; Monroe, La.
Wilmington, N. C ...	*Charlotte, N. C.; Cheraw, S. C.; Florence, S. C.; Goldsborough, N. C.; Lumberton, N. C.; Salisbury, N. C.; Wadesborough, N. C.; Weldon, N. C.

Stations marked thus * are regular Signal Service stations.

Observations were discontinued October 31, 1883, and resumed April 1, 1884.

Prior to resumption steps were taken to increase the usefulness of this branch of the service by dropping stations thought to be of little importance and adding others of more value, and by transferring from one district to another.

Looking to this end the following changes were made in the arrangement of the cotton-region stations:

In the Atlanta district, Calhoun, Ga., was dropped, and Greenville, S. C., added. Columbus, Macon, and Madison, Ga., were transferred from the Augusta to the Atlanta district.

In the Augusta district, Columbus, Covington, Macon, and Madison, Ga., were dropped (Columbus, Macon, and Madison transferred), and Batesburg, S. C., Blackville, S. C., Camak, Ga., Greenwood, S. C., Waynesborough, Ga., and Washington, Ga., added.

In the Galveston district, Columbia, Tex., was added.

In the Little Rock district, Walnut Ridge, Ark., was dropped, and Helena, Magnolia, Newport, and Pine Bluff, Ark., were added.

In the Memphis district, Clarksville and Erin, Tenn., were dropped, and Bolivar, Tenn., Covington, Tenn., Dyersburg, Tenn., Holly Springs, Miss., and Oxford, Miss., were added.

In the Mobile district, State Line, Ala., was dropped, and Evergreen and Livingston, Ala., were added.

In the Montgomery district, Tuscaloosa, Ala., was dropped, and Eufaula, Fort Deposit, Goodwater, Marion, and Troy, Ala., were added.

In the New Orleans district, Franklin, La., Morgan City, La., New Iberia, La., Pass Christian, Miss., Scranton, Miss., and Terre Bonne, La., were dropped, and Hazlehurst, Miss., Minden, La., Natchez, Miss., Opelousas, La., and Shreveport, La., were added.

In the Vicksburg district, Greenville, Miss., was added.

In the Wilmington district, Raleigh and New Berne, N. C., were added.

Of this rearrangement the following is a

RECAPITULATION.

Number of new stations added	32
Number of old stations dropped	13
Number of stations transferred	3
Number of stations in operation during July, August, September, and October, 1883	131
Number of stations it was intended to operate during remainder of season ending October 31, 1884	150

Some difficulty was met with in getting the new stations in operation, owing to delays in securing passes for the Signal Service observers over railroads to points selected.

The stations at Goodwater and Troy, Ala., had to be discontinued, as the telegraph company controlling the lines from Goodwater to Opelika and from Troy to Union Springs refused to do the telegraphing free. The stations were discontinued April 29, 1884.

Madison, Ga., and Greenville, Miss., were discontinued for a like cause, April 25 and June 4, 1884, respectively.

The reports from Demopolis, Talladega, and Uniontown, Ala., had to pass over the Western Union Telegraph Company's line to reach the district center (Montgomery), and could not be sent without expense to the service. These stations were therefore discontinued May 3, 1884. This action was rendered necessary by the limited appropriations for this branch of the service.

On June 1, 1884, the name of the station at Vermillionville, La., in the New Orleans district, was changed to La Fayette, La., to agree with the records of the Post-Office Department.

Anderson, S. C., was added to the Atlanta district April 9, 1884.

Mr. J. W. Hopkins, chairman of the Meteorological Committee of Nashville, Tenn., in a communication to the observer in that city, called attention to the absence of a cotton-region station in Southeast Tennessee, and recommended the establishment of a station at Pulaski, Tenn. Mr. Hopkins' suggestion could not be carried out, owing to insufficient funds.

Upon the recommendation of Hon. W. R. Cox, M. C., the observer at Wilmington, N. C., was instructed to telegraph daily the means of the several districts to Mr. A. A. Thompson, secretary of the Cotton Exchange, Raleigh, N. C. The reports are bulletined at the exchange rooms and post-office.

The pay of the (civilian) observers continues at 20 cents per report made, while that of the operators employed at centers, &c., collecting reports for concentration, remains at 5 cents per report.

Messengers are employed collecting reports from railroad offices at centers, &c., at the following places: Houston, Tex., $5 per month; New Orleans, La., $15 per month; Selma, Ala., $5 per month.

During the year reports were, as a rule, received regularly and on time at the centers.

In some few cases the railroad agents, acting as cotton-region observers, refused to take the observations on Sundays, giving as a reason the fact that no railroad duties were performed on those days.

Much credit is due the railroads generally for their liberality in granting passes to our observers for the purpose of establishing and discontinuing stations.

The interest that has been taken in the cotton-region system of reports since its establishment not only continues but is decidedly on the increase, and the estimation in which it is held by cotton-growers, as shown by communications to this office, evidences that it is productive of the best results.

Many courtesies were extended by the several cotton exchanges during the year to the office in its efforts to extend the usefulness of the system.

The following is a list of stations now in operation, arranged alphabetically under their respective centers, showing the railroads on which they are located and the railroad time in use:

District center.	Sub-station.	Time in use.	Railroads co-operating with the Signal Service.
Atlanta........	Anderson, S. C........	Eastern.	Columbia and Greenville.
	Cartersville, Ga.......	Central.	Eastern and Western of Alabama; Western and Atlantic.
	Columbus, Ga.........	...do....	Mobile and Gulf; Columbus and Rome; Columbus and Western; Southwestern.
	Dalton, Ga............	...do....	East Tennessee, Virginia and Georgia; Western and Atlantic.
	Gainesville, Ga........	...do....	Richmond and Danville; Gainesville, Jefferson and Southern.
	Greenville, S. C........	Eastern.	Carillon and Greenville; Richmond and Danville.
	Griffin, Ga.............	Central.	Central of Georgia; Savannah, Griffin and North Alabama.
	Macon, Ga.............	...do....	Georgia; Central of Georgia; East Tennessee, Virginia and Georgia; Southwestern.
	Newnan, Ga............	...do....	Atlanta and West Point; Savannah, Griffin and North Alabama.
	Spartanburg, S. C.....	Eastern.	Asheville and Spartanburg; Richmond and Danville; Spartanburg, Union and Columbia.
	Toccoa, Ga.............	Central.	Elberton Air Line; Richmond and Danville.
	West Point, Ga........	...do...	Atlanta and West Point; Western of Alabama.
Augusta.......	Allendale, S. C.........	...do....	Port Royal and Augusta.
	Athens, Ga............	...do....	Georgia; Northeastern of Georgia.
	Batesburg, S. C.......	Eastern.	Charlotte, Columbia and Augusta.
	Blackville, S. C........	...do....	South Carolina.
	Camak, Ga............	Central.	Georgia.
	Chester, S. C	Eastern.	Charlotte, Columbia and Augusta.
	Columbia, S. C.........	...do....	Charlotte, Columbia and Augusta; Columbia and Greenville; South Carolina; Wilmington, Columbia and Augusta.
	Greenwood, S. C......	Central.	Augusta and Knoxville; Columbia and Greenville.
	Union Point, Ga.......	...do....	Georgia.
	Washington, Ga.......	...do....	Do.
	Waynesborough, Ga..	...do....	Central of Georgia.
Charleston....	Branchville, S. C......	Eastern.	South Carolina.
	Hardeeville, S. C......	Central.	Charleston and Savannah.
	Jacksonborough, S. C.	...do....	Do.
	Kingstree, S. C.	Eastern.	Northeastern.
	Saint George's, S. C...	...do....	South Carolina.
	Saint Matthew's, S. C.	...do....	Do.

District center.	Sub-station.	Time in use.	Railroads co-operating with the Signal Service.
Charleston	Yemassee, S. C	Central	Port Royal and Augusta; Charleston and Savannah.
Galveston	Austin, Tex	do	Austin and Northwestern; Houston and Texas Central; International and Great Northern.
	Beaumont, Tex	do	Texas and New Orleans; Galveston, Harrisburg and San Antonio.
	Belton, Tex	do	Gulf, Colorado and Santa Fé; Missouri Pacific.
	Columbia, Tex	do	International and Great Northern.
	Corsicana, Tex	do	Houston and Texas Central; Texas and Saint Louis.
	Cuero, Tex	do	Gulf, Western Texas and Pacific.
	Dallas, Tex	do	Houston and Texas Central; Gulf, Colorado and Santa Fé; Texas and Pacific; Missouri Pacific; Texas Trunk.
	Hearne, Tex	do	Houston and Texas Central; International and Great Northern.
	Hempstead, Tex	do	Houston and Texas Central.
	Houston, Tex	do	Galveston, Harrisburg and San Antonio; Galveston, Houston and Henderson; Gulf, Colorado and Santa Fé; Houston and Texas Central; Houston, East and West Texas; International and Great Northern; Texas and New Orleans; Texas Western.
	Huntsville, Tex	do	International and Great Northern.
	Longview, Tex	do	Texas and Pacific; Galveston, Sabine and Saint Louis; International and Great Northern.
	Luling, Tex	do	Galveston, Harrisburg and San Antonio.
	Orange, Tex	do	Texas and New Orleans.
	Palestine, Tex	do	International and Great Northern.
	San Antonio, Tex	do	Galveston, Harrisburg and San Antonio; International and Great Northern.
	Sour Lake, Tex	do	Texas and New Orleans.
	Tyler, Tex	do	International and Great Northern; Texas and Saint Louis.
	Waco, Tex	do	Houston and Texas Central; Missouri Pacific; Texas and Saint Louis.
	Weatherford, Tex	do	Texas and Pacific.
	Weimar, Tex	do	Galveston, Harrisburg and San Antonio.
Little Rock	Arkansas City, Ark	do	Little Rock, Mississippi River and Texas.
	Brinkley, Ark	do	Memphis and Little Rock; Arkansas Midland; Batesville and Brinkley; Texas and Saint Louis.
	Devall's Bluff, Ark	do	Memphis and Little Rock.
	Fort Smith, Ark	do	Little Rock and Fort Smith; Saint Louis and San Francisco.
	Helena, Ark	do	Arkansas Midland; Saint Louis, Iron Mountain and Southern.
	Kensett, Ark	do	Saint Louis, Iron Mountain and Southern.
	Madison, Ark	do	Memphis and Little Rock.
	Magnolia, Ark	do	Texas and Saint Louis (branch).
	Malvern, Ark	do	Hot Springs; Saint Louis, Iron Mountain and Southern.
	Monticello, Ark	do	Little Rock, Mississippi River and Texas.
	Newport, Ark	do	Saint Louis, Iron Mountain and Southern.
	Paris, Tex	do	Texas and Pacific.
	Pine Bluff, Ark	do	Little Rock, Mississippi River and Texas; Texas and Saint Louis.
	Prescott, Ark	do	Saint Louis, Iron Mountain and Southern.
	Russellville, Ark	do	Little Rock and Fort Smith.
	Texarkana, Ark	do	Texas and Pacific; Saint Louis, Iron Mountain and Southern; Texas and Saint Louis.
Memphis	Batesville, Miss	do	Mississippi and Tennessee.
	Bolivar, Tenn	do	Illinois Central.
	Brownsville, Tenn	do	Louisville and Nashville.
	Corinth, Miss	do	Memphis and Charleston; Mobile and Ohio.
	Covington, Tenn	do	Chesapeake, Ohio and Southwestern.
	Decatur, Ala	do	Louisville and Nashville; Memphis and Charleston.
	Dyersburg, Tenn	do	Chesapeake, Ohio and Southwestern.
	Grand Junction, Tenn	do	Illinois Central; Memphis and Charleston.
	Grenada, Miss	do	Mississippi and Tennessee; Illinois Central.
	Hernando, Miss	do	Mississippi and Tennessee.
	Holly Springs, Miss	do	Illinois Central.
	Milan, Tenn	do	Louisville and Nashville; Illinois Central.
	Nashville, Tenn	do	Louisville and Nashville; Nashville, Chattanooga and Saint Louis.
	Oxford, Miss	do	Illinois Central.
	Paris, Tenn	do	Louisville and Nashville.
	Scottsborough, Ala	do	Memphis and Charleston.
	Tuscumbia, Ala	do	Do.
	Withe, Tenn	do	Louisville and Nashville.
Mobile	Aberdeen, Miss	do	Mobile and Ohio.
	Columbus, Miss	do	Georgia Pacific; Mobile and Ohio.
	Evergreen, Ala	do	Louisville and Nashville.
	Livingston, Ala	do	Alabama Great Southern
	Macon, Miss	do	Mobile and Ohio.

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District center.	Sub-station.	Time in use.	Railroads co-operating with the Signal service.
Mobile	Meridian, Miss	Central	Alabama Great Southern; East Tennessee, Virginia and Georgia; Mobile and Ohio; New Orleans and Northeastern; Vicksburg and Meridian.
	Okolona, Miss	do	Mobile and Ohio.
	Waynesborough, Miss	do	Do.
Montgomery	Birmingham, Ala	do	Alabama Great Southern; Louisville and Nashville.
	Calera, Ala	do	Louisville and Nashville; East Tennessee, Virginia and Georgia.
	Eufaula, Ala	do	Southwestern; Montgomery and Eufaula; Eufaula and Clayton.
	Fort Deposit, Ala	do	Louisville and Nashville.
	Greenville, Ala	do	Do.
	Marion, Ala	do	Cincinnati, Selma and Mobile.
	Opelika, Ala	do	East Alabama; Columbus and Western; Western of Alabama.
	Pine Apple, Ala	do	Louisville and Nashville.
	Selma, Ala	do	East Tennessee, Virginia and Georgia; Cincinnati, Selma and Mobile; Louisville and Nashville; New Orleans and Selma; Pensacola and Selma.
New Orleans	Alexandria, La	do	Morgan's Louisiana and Texas; Texas and Pacific.
	Amite City, La	do	Illinois Central.
	Brookhaven, Miss	do	Do.
	Cheneyville, La	do	Morgan's Louisiana and Texas; Texas and Pacific.
	Coushatta Chute, La	do	(Merchants' Union Telegraph Line, connecting with Western Union lines at Minden.)
	Hazlehurst, Miss	do	Illinois Central.
	La Fayette, La	do	Morgan's Louisiana and Texas; Texas and New Orleans.
	Minden, La	do	(Merchants' Union Telegraph Line, connecting with Western Union lines at Minden.)
	Natches, Miss	do	Natchez, Jackson and Columbus.
	Natchitoches, La	do	(Merchant's Union Telegraph Line, connecting with Western Union lines at Minden.)
	Opelousas, La	do	Morgan's, Louisiana and Texas.
	Shreveport, La	do	Texas and Pacific.
	Whiteville, La	do	Morgan's Louisiana and Texas.
Savannah	Albany, Ga	do	Brunswick and Western; Savannah, Florida and Western; Southwestern.
	Allapaha, Ga	do	Brunswick and Western.
	Bainbridge, Ga	do	Savannah, Florida and Western.
	Codar Keys, Fla	do	Florida Transit and Peninsular.
	Eastman, Ga	do	Macon and Brunswick.
	Fernandina, Fla	do	Florida Transit and Peninsular.
	Fort Gaines, Ga	do	Southwestern.
	Jessup, Ga	do	Savannah, Florida and Western; Macon and Brunswick.
	Live Oak, Fla	do	Savannah, Florida and Western; Florida Central and Western.
	Millen, Ga	do	Central of Georgia.
	Quitman, Ga	do	Savannah, Florida and Western.
	Smithville, Ga	do	Southwestern.
	Thomasville, Ga	do	Savannah, Florida and Western.
	Waldo, Fla	do	Florida Transit and Peninsular; Peninsular.
	Way Cross, Ga	do	Brunswick and Western; Savannah, Florida and Western.
Vicksburg	Edwards, Miss	do	Vicksburg and Meridian.
	Jackson, Miss	do	Illinois Central; Natchez, Jackson and Columbus; Vicksburg and Meridian.
	Lake, Miss	do	Vicksburg and Meridian.
	Monroe, La	do	Vicksburg, Shreveport and Pacific.
Wilmington	Charlotte, N. C	Eastern	Richmond and Danville; Carolina Central; Charlotte, Columbia and Augusta.
	Cheraw, S. C	do	Cheraw and Darlington; Cheraw and Salisbury.
	Florence, S. C	do	Cheraw and Darlington; Northeastern; Wilmington, Columbia and Augusta.
	Goldsborough, N. C	do	Wilmington and Weldon; Atlantic and North Carolina; Richmond and Danville.
	Lumberton, N. C	do	Carolina Central.
	New Berne, N. C	do	Atlantic and North Carolina.
	Raleigh, N. C	do	Raleigh and Gaston; Raleigh and Augusta Air Line; Richmond and Danville.
	Salisbury, N. C	do	Richmond and Danville; Western of North Carolina.
	Wadesborough, N. C	do	Carolina Central; Cheraw and Salisbury.
	Weldon, N. C	do	Petersburg; Raleigh and Gaston; Seaboard and Roanoke; Wilmington and Weldon.

I am, very respectfully, your obedient servant,

F. M. M. BEALL,
Second Lieutenant, Signal Corps.

APPENDIX 16.

List of boards of trade, chambers of commerce, and other organisations which had on June 30, 1884, meteorological committees to confer with the Chief Signal Officer of the Army.

Place.	Organisation.	Committee.
Albany, N. Y	Board of Trade	Charles B. Tillinghast, J. Townsend Lansing, Walter McEwan.
Alpena, Mich	Board of Underwriters	Henry S. Seage, John N. Kelley, J. D. Holmes, B. F. Luce, Charles H. Luce.
Astoria, Oreg	Chamber of Commerce	Dr. A. C. Kinney, M. C. Crosby.
Atlanta, Ga	Board of Trade and Academy of Science.	B. W. Frobel, J. T. Henderson, R. J. Redding.
Augusta, Ga	Cotton Exchange	J. M. Anderson, W. J. Pollard, G. K. Moore.
Baltimore, Md	Board of Trade	R. W. Cator, D. L. Bartlett, Germon H. Hunt, Frank H. Jenkins, D. T. Busby.
Bismarck, Dak	Board of Trade	Dr. William A. Bently, F. W. McKinney, F. A. Leavenworth.
Block Island, R. I		B. B. Mitchell, Ray D. Littlefield, Charles E. Perry.
Boston, Mass	Society of Arts	Prof. William H. Niles, Jacob A. Dresser, George L. Roberts.
Buffalo, N. Y	Merchants' Exchange	George B. Mathews, Charles A. Sweet, John N. Scatcherd, Jewett M. Richmond, Edward W. Eames.
Charleston, S. C	Chamber of Commerce	C. Gravely, F. W. Dawson, A. D. Cohen.
Chattanooga, Tenn	Iron and Coal Manufacturers' Association.	Rev. J. W. Bachman, F. J. Bennett, D. W. Chase, S. B. Lowe, John A. Hart, S. R. Read, C. D. McGuffey.
Chicago, Ill	Board of Trade	W. H. Crocker, S. D. Foss, L. G. Holley.
Cincinnati, Ohio	Board of Trade and Transportation Committee.	T. E. Livezey, George C. Clements, Charles H. Law, Alexander Hill, A. M. Dolph.
Cleveland, Ohio	Board of Trade	R. K. Winslow, R. T. Lyon, Capt. W. B. Guyles.
Columbus, Ohio	Board of Trade	George W. Twiss, George Cole, J. B. K. Connelly.
Denver, Colorado	Chamber of Commerce and Board of Trade.	Charles F. Wilson, F. J. V. Skiff, John Brisbee Walker, Joseph T. Cornforth, B. H. Bayles.
Des Moines, Iowa	Board of Trade	J. P. Bushnell, S. A. Robertson, W. A. Warfield.
Detroit, Mich	Board of Trade	T. P. Kall, J. W. Flynn.
Dubuque, Iowa	Board of Trade	Dr. A. Horr, T. W. Ruete, S. M. Langworthy.
Duluth, Minn	Chamber of Commerce	Capt. B. G. Yocum, C. D. Wright, A. J. Miller.
Erie, Pa	Board of Trade	John Oliver, W. B. Trask, C. H. Walbridge.
Grand Haven, Mich		Hon. Dwight Cutler, T. W. Kirby, William Wallace.
Huron, Dak	Board of Trade	John Cain, Augustine Davis, Hon. George W. Sterling.
Indianapolis, Ind	Board of Trade	John H. Holliday, Fred. Baggs, John W. Ray.
Indianola, Tex		H. J. Huck, Emile Reiffert.
Jacksonville, Fla	Board of Trade	Dr. A. S. Baldwin, M. W. Drew, G. W. Garrett, A. W. Barrs.
La Crosse, Wis	Board of Trade	D. A. McDonald, W. W. Jones, John Rau.
Leavenworth, Kans	Board of Trade	Dr. R. J. Brown, Judge L. Hawn, L. Mayo.
Los Angeles, Cal	Board of Trade	Eugene Germain, John R. Mathews, John B. Niles.
Louisville, Ky	Board of Trade	William Cornwall, jr., J. B. Speed, Graham Wilder, J. A. Tanner, E. H. Bowen, Nick. Finzer, R. M. Kelly.
Do	Polytechnic Society	E. A. Grant, M. D., LL. D.; Prof. J. A. Tanner, M. D.; Prof. H. W. Eaton, Ph. D.
Memphis, Tenn	Cotton Exchange	Gen. R. F. Patterson, C. E. F. Hall, C. E. Tucker, D. P. Hadden, F. Frisch, M. Gavin, E. F. Galson, J. R. Godwin.

List of boards of trade, chambers of commerce, &c.—Continued.

Place.	Name of organization.	Committee.
Memphis, Tenn	Merchants' Exchange	L. N. Estes, W. T. Stone, A. Vacarro.
Milwaukee, Wis	Chamber of Commerce	John L. Hathaway, John B. Merrill, David Vance.
Mobile, Ala	Cotton Exchange	W. H. Gardner, Adolph Proskauer, D. E. Huger.
Do	Chamber of Commerce	Hon. Peter Hamilton, W. H. Gardner, E. O. Zadek.
Nashville, Tenn	Merchants' Exchange	J. W. Hopkins, E. D. Hicks, H. W. Grantland.
New Haven, Conn	Chamber of Commerce	Henry G. Lewis, Johnson T. Platt.
New London, Conn		James Fitch, George T. Marshall, H. S. Bartlett, E. A. Delaney, R. M. Waterman, Leonard Smith.
New Orleans, La	Cotton Exchange	J. L. McLean, R. S. Day, J. P. Dobbins.
Do	Produce Exchange	J. T. Brodnax, H. J. Roman, C. H. Allen.
Do	Sugar Exchange	J. Barkley, B. M. King, W. B. Bloomfield, P. Lanaux, W. Henderson.
New York City	Cotton Exchange	Walter T. Miller, James F. Maury, William P. Campbell.
Norfolk, Va	Norfolk and Portsmouth Cotton Exchange.	John N. Vaughan, Adam Tredwell.
Omaha, Nebr	Board of Trade	Thomas Gibson, C. T. Goodman, G. V. Ames.
Oswego, N. Y	Board of Trade	J L. McWhorter, A. S. Falling, W. R. Hosmer.
Pensacola, Fla	Board of Trade and Exchange.	Hon. S. C. Cobb, Hon. I. M. Tarble, H. Baars.
Philadelphia, Pa	Maritime Exchange	Charles Gibbons, jr., E. K. Stevenson, E. F. Parker.
Pittsburgh, Pa	Coal Exchange	Richard Barrows, M. E. Lynn, John W. Risher.
Portland, Me	Board of Trade	C. K. Farley, M. N. Rich, William Senter.
Portland, Oreg	Chamber of Commerce and Board of Trade.	A. F. Sears, George H. Himes, Frank Dekum.
Rochester, N. Y		John Siddons, H. S. Hebard, George Schofield.
San Diego, Cal	Society of Natural History	Dr. G. W. Barnes, E. J. Buell, C. J. Fox.
Sandusky, Ohio	Board of Trade and City Council.	J. O. Moss, C. N. Ryan, R. B. Hubbard.
San Francisco, Cal	Chamber of Commerce	William L. Merry, Jacob S. Taber, W. W. Dodge.
Savannah, Ga	Cotton Exchange	C. M. Holst, A. L. Hartridge, J. J. Wilder.
Shreveport, La	Cotton Exchange	C. H. Minge, J. S. Zeigler, J. C. Soape.
Saint Louis, Mo	Cotton Exchange	C. M. Donaldson, C. W. Simmons, E. D. Meier, C. G. Peper, J. A. Woolaridge, C. L. Dean, J. H. Cogswell.
Do	Merchants' Exchange	R. S. McCormick, Hanson Rasin, John Bird, J. L. Huse, R. M. Hubbard, Jacob Schaeffer, R. F. Sass.
Saint Paul, Minn	Chamber of Commerce	R. O Sweeney, Rev. David Breed, M. N. Kellogg.
Toledo, Ohio	Toledo Produce Exchange	W. T. Walker, W. H. Bellman, John Cummings.
Vicksburg, Miss		Thomas Mount, Dr. G. W. Howard, Capt. E. C. Carroll, J. D. Tinney.
Wilmington, N. C	Chamber of Commerce	A. H. Van Bokkelen, George Harriss, William L. De Rosset.
Yankton, Dak	Board of Trade	J. C. McVay, A. W. Barber, J. V. Bunker.

APPENDIX 16.

List of boards of trade, chambers of commerce, and other organizations which had on June 30, 1884, meteorological committees to confer with the Chief Signal Officer of the Army.

Place.	Organization.	Committee.
Albany, N. Y	Board of Trade	Charles B. Tillinghast, J. Townsend Lansing, Walter McEwan.
Alpena, Mich	Board of Underwriters	Henry S. Seage, John N. Kelley, J. D. Holmes, B. F. Luce, Charles H. Luce.
Astoria, Oreg	Chamber of Commerce	Dr. A. C. Kinney, M. C. Crosby.
Atlanta, Ga	Board of Trade and Academy of Science.	B. W. Frobel, J. T. Henderson, R. J. Redding.
Augusta, Ga	Cotton Exchange	J. M. Anderson, W. J. Pollard, G. K. Moore.
Baltimore, Md	Board of Trade	R. W. Cator, D. L. Bartlett, Germon H. Hunt, Frank H. Jenkins, D. T. Busby.
Bismarck, Dak	Board of Trade	Dr. William A. Bently, F. W. McKinney, F. A. Leavenworth.
Block Island, R. I		B. B. Mitchell, Ray D. Littlefield, Charles E. Perry.
Boston, Mass	Society of Arts	Prof. William H. Niles, Jacob A. Dresser, George L. Roberts.
Buffalo, N. Y	Merchants' Exchange	George B. Mathews, Charles A. Sweet, John N. Scatcherd, Jewett M. Richmond, Edward W. Eames.
Charleston, S. C	Chamber of Commerce	C. Gravely, F. W. Dawson, A. D. Cohen.
Chattanooga, Tenn	Iron and Coal Manufacturers' Association.	Rev. J. W. Bachman, F. J. Bennett, D. W. Chase, S. B. Lowe, John A. Hart, S. R. Read, C. D. McGuffey.
Chicago, Ill	Board of Trade	W. H. Crocker, S. D. Foss, L. G. Holley.
Cincinnati, Ohio	Board of Trade and Transportation Committee.	T. E. Livezey, George C. Clements, Charles H. Law, Alexander Hill, A. M. Dolph.
Cleveland, Ohio	Board of Trade	R. K. Winslow, R. T. Lyon, Capt. W. B. Guyles.
Columbus, Ohio	Board of Trade	George W. Twiss, George Cole, J. B. K. Connelly.
Denver, Colorado	Chamber of Commerce and Board of Trade.	Charles F. Wilson, F. J. V. Skiff, John Brisbee Walker, Joseph T. Cornforth, B. H. Bayles.
Des Moines, Iowa	Board of Trade	J. P. Bushnell, S. A. Robertson, W. A. Warfield.
Detroit, Mich	Board of Trade	T. P. Kall, J. W. Flynn.
Dubuque, Iowa	Board of Trade	Dr. A. Horr, T. W. Ruete, S. M. Langworthy.
Duluth, Minn	Chamber of Commerce	Capt. B. G. Yocum, C. D. Wright, A. J. Miller.
Erie, Pa	Board of Trade	John Oliver, W. B. Trask, C. H. Walbridge.
Grand Haven, Mich		Hon. Dwight Cutler, T. W. Kirby, William Wallace.
Huron, Dak	Board of Trade	John Cain, Augustine Davis, Hon. George W. Sterling.
Indianapolis, Ind	Board of Trade	John H. Holliday, Fred. Baggs, John W. Ray.
Indianola, Tex		H. J. Huck, Emile Reiffert.
Jacksonville, Fla	Board of Trade	Dr. A. S. Baldwin, M. W. Drew, G. W. Garrett, A. W. Barrs.
La Crosse, Wis	Board of Trade	D. A. McDonald, W. W. Jones, John Rau.
Leavenworth, Kans	Board of Trade	Dr. R. J. Brown, Judge L. Hawn, L. Mayo.
Los Angeles, Cal	Board of Trade	Eugene Germain, John R. Mathews, John B. Niles.
Louisville, Ky	Board of Trade	William Cornwall, jr., J. B. Speed, Graham Wilder, J. A. Tanner, E. H. Bowen, Nick. Finzer, R. M. Kelly.
Do	Polytechnic Society	E. A. Grant, M. D., LL. D.; Prof. J. A. Tanner, M. D.; Prof. H. W. Eaton, Ph. D.
Memphis, Tenn	Cotton Exchange	Gen. R. F. Patterson, C. E. F. Hall, C. E. Tucker, D. P. Hadden, F. Frisch, M. Gavin, E. F. Galson, J. R. Godwin.

List of boards of trade, chambers of commerce, &c.—Continued.

Place.	Name of organization.	Committee.
Memphis, Tenn	Merchants' Exchange	L. N. Estes, W. T. Stone, A. Vacarro.
Milwaukee, Wis	Chamber of Commerce	John L. Hathaway, John B. Merrill, David Vance.
Mobile, Ala	Cotton Exchange	W. H. Gardner, Adolph Proskauer, D. E. Huger.
Do	Chamber of Commerce	Hon. Peter Hamilton, W. H. Gardner, E. O. Zadek.
Nashville, Tenn	Merchants' Exchange	J. W. Hopkins, E. D. Hicks, H. W. Grantland.
New Haven, Conn	Chamber of Commerce	Henry G. Lewis, Johnson T. Platt.
New London, Conn	...	James Fitch, George T. Marshall, H. S. Bartlett, E. A. Delaney, R. M. Waterman, Leonard Smith.
New Orleans, La	Cotton Exchange	J. L. McLean, R. S. Day, J. P. Dobbins.
Do	Produce Exchange	J. T. Brodnax, H. J. Roman, C. H. Allen.
Do	Sugar Exchange	J. Barkley, B. M. King, W. B. Bloomfield, P. Lanaux, W. Henderson.
New York City	Cotton Exchange	Walter T. Miller, James F. Maury, William P. Campbell.
Norfolk, Va	Norfolk and Portsmouth Cotton Exchange.	John N. Vaughan, Adam Tredwell.
Omaha, Nebr	Board of Trade	Thomas Gibson, C. T. Goodman, G. V. Ames.
Oswego, N. Y	Board of Trade	J L. McWhorter, A. S. Failing, W. R. Hosmer.
Pensacola, Fla	Board of Trade and Exchange.	Hon. S. C. Cobb, Hon. I. M. Tarble, H. Baars.
Philadelphia, Pa	Maritime Exchange	Charles Gibbons, jr., E. K. Stevenson, E. F. Parker.
Pittsburgh, Pa	Coal Exchange	Richard Barrows, M. E. Lynn, John W. Risher.
Portland, Me	Board of Trade	C. K. Farley, M. N. Rich, William Senter.
Portland, Oreg	Chamber of Commerce and Board of Trade.	A. F. Sears, George H. Himes, Frank Dekum.
Rochester, N. Y	...	John Siddons, H. S. Hebard, George Schofield.
San Diego, Cal	Society of Natural History	Dr. G. W. Barnes, E. J. Buell, C. J. Fox.
Sandusky, Ohio	Board of Trade and City Council.	J. O. Moss, C. N. Ryan, R. B. Hubbard.
San Francisco, Cal	Chamber of Commerce	William L. Merry, Jacob S. Taber, W. W. Dodge.
Savannah, Ga	Cotton Exchange	C. M. Holst, A. L. Hartridge, J. J. Wilder.
Shreveport, La	Cotton Exchange	C. H. Minge, J. S. Zeigler, J. C. Soape.
Saint Louis, Mo	Cotton Exchange	C. M. Donaldson, C. W. Simmons, E. D. Meier, C. G. Peper, J. A. Woolaridge, C. L. Dean, J. H. Cogswell.
Do	Merchants' Exchange	R. S. McCormick, Hanson Rasin, John Bird, J. L. Huse, R. M. Hubbard, Jacob Schaeffer, R. F. Sass.
Saint Paul, Minn	Chamber of Commerce	R. O Sweeney, Rev. David Breed, M. N. Kellogg.
Toledo, Ohio	Toledo Produce Exchange	W. T. Walker, W. H. Bellman, John Cummings.
Vicksburg, Miss	...	Thomas Mount, Dr. G. W. Howard, Capt. E. C. Carroll, J. D. Tinney.
Wilmington, N. C	Chamber of Commerce	A. H. Van Bokkelen, George Harriss, William L. De Rosset.
Yankton, Dak	Board of Trade	J. C. McVay, A. W. Barber, J. V. Bunker.

APPENDIX 17.

Stations inspected, by whom, and when, during fiscal year ending June 30, 1884.

Station.	By whom inspected.	When inspected.
Albany, N. Y	Lieut. Joseph S. Powell, Signal Corps, U. S. A.	March 2, 3, 1884.
Assinaboine, Fort, Mont	Lieut. J. P. Story, acting signal officer	September 6, 7, 8, 1883.
Astoria, Oreg	Lieut. Frank Greene, Signal Corps, U. S. A	September 9, 1883.
Atlanta, Ga	Lieut. R. B. Watkins, Signal Corps, U. S. A	April 5–7, 1884.
Baltimore, Md	Lieut. Joseph S. Powell, Signal Corps, U. S. A.	April 2, 1884.
Bennett, Fort, Mont	Lieut. J. P. Story, acting signal officer	July 20–23, 1883.
Benton, Fort, Mont	do	September 4–12, 1883.
Bismarck, Dak	do	July 31, August 1, 2, 3, 1883.
Boston, Mass	Lieut. Joseph S. Powell, Signal Corps, U. S. A.	March 5, 6, 7, 8, 1884.
Buffalo, N. Y	do	February 24, 25, 26, 1884.
Buford, Fort, Dak	Lieut. J. P. Story, acting signal officer	September 7, 8, 9, 1883.
Camp Poplar River, Mont	do	August 9-13, 1883.
Cape Henry, Va	Lieut. Robert Craig, acting signal officer	July 8, 9, 1883.
Canby, Fort, Wash. T	Lieut. Frank Greene, Signal Corps, U. S. A	September 11, 12, 13, 1883.
Cairo, Ill	Lieut. R. B. Watkins, Signal Corps, U. S. A	May 12, 13, 1884.
Cheyenne, Wyo	Lieut. J. P. Story, acting signal officer	November 5-8, 1883.
Chattanooga, Tenn	Lieut. R. B. Watkins, Signal Corps, U. S. A	March 26, 27, 28, 1884.
Chicago, Ill	Lieut. P. H. Ray, acting signal officer	January 26, 1884.
Cincinnati, Ohio	Lieut. R. B. Watkins, Signal Corps, U. S. A	May 17, 18, 19, 1884.
Cleveland, Ohio	Lieut. P. H. Ray, acting signal officer	March 11, 12, 1884.
Cœur d'Alene, Fort, Idaho	Lieut. Frank Greene, Signal Corps, U. S. A	October 30, 1883.
Columbus, Ohio	Lieut. R. B. Watkins, Signal Corps, U. S. A	May 21, 22, 1884.
Crescent Bay, Wash. T	Lieut. Frank Greene, Signal Corps, U. S. A	October 30, 1883.
Custer, Fort, Mont	Lieut. J. P. Story, acting signal officer	September 23-26, 1883.
Davis, Fort, Tex	Lieut. L. E. Sebree, Signal Corps, U. S. A	October 12, 13, 1883.
Davenport, Iowa	Lieut. P. H. Ray, acting signal officer	February 23, 1884.
Dayton, Wash. T	Lieut. Frank Greene, Signal Corps, U. S. A	December 5–10, 1883.
Deadwood, Dak	Lieut. J. P. Story, acting signal officer	September 28, 29, 1883.
Des Moines, Iowa	Lieut. P. H. Ray, acting signal officer	February 25, 1884.
Dubuque, Iowa	do	February 21, 22, 1884.
Eastport, Me	Lieut. Joseph S. Powell, Signal Corps, U. S. A.	March 8–10, 1884.
El Paso, Tex	Lieut. L. E. Sebree, Signal Corps, U. S. A	October 10–15, 1883.
Erie, Pa	Lieut. P. H. Ray, acting signal officer	March 14, 1884.
Fort Smith, Ark	Lieut. R. B. Watkins, Signal Corps, U. S. A.	May 8, 9, 1884.
Hatteras, N. C	Lieut. Robert Craig, acting signal officer	June 28–30, 1883.
Helena, Mont	Lieut. J. P. Story, acting signal officer	September 17, 18, 1883.
Hoko, Wash. T	Lieut. Frank Greene, Signal Corps, U. S. A	September 28, 1883.
Indianapolis, Ind	Lieut. P. H. Ray, acting signal officer	March 8–10, 1884.
Keokuk, Iowa	do	February 26, 1884.
Kitty Hawk, N. C	Lieut. Robert Craig, acting signal officer	July 3, 4, 1883.
Knoxville, Tenn	Lieut. R. B. Watkins, Signal Corps, U. S. A	March 26–28, 1884.
Lapwai, Fort, Idaho	Lieut. Frank Greene, Signal Corps, U. S. A.	August 25, 1883.
Lewiston, Idaho	do	August 24, 1883.
Little Rock, Ark	Lieut. R. B. Watkins, Signal Corps, U. S. A	April 25, 26, 1884.
Louisville, Ky	Lieut. P. H. Ray, acting signal officer	March 6, 7, 1884.
Do	Lieut. R. B. Watkins, Signal Corps, U. S. A	May 15, 16, 1884.
Los Angeles, Cal	Lieut. R. H. Fletcher, U. S. A	February 29, 1884.
Lynchburg, Va	Lieut. R. B. Watkins, Signal Corps, U. S. A	March 24, 1884.
Maginnis, Fort, Mont	Lieut. J. P. Story, acting signal officer	August 28, 29, 1883.
Marfa, Tex	Lieut. L. E. Sebree, Signal Corps, U. S. A.	October 14, 1883.
Meade, Fort, Dak	Lieut. J. P. Story, acting signal officer	September 30, 1883.
Memphis, Tenn	Lieut. R. B. Watkins, Signal Corps, U. S. A	April 21–23, 1884.
Milwaukee, Wis	Lieut. P. H. Ray, acting signal officer	February 11, 14, 1884.
Montgomery, Ala	Lieut. R. B. Watkins, Signal Corps, U. S. A	April 14, 15, 1884.
Nashville, Tenn	do	April 1–3, 1884.
Neah Bay, Wash	Lieut. Frank Greene, Signal Corps, U. S. A.	September 27, 1883.
New Haven, Conn	Lieut. Joseph S. Powell, Signal Corps, U. S. A.	March 22, 23, 1884.
New London, Conn	do	March 18, 19, 1884.
New Shoreham, R. I	do	March 20, 21, 1884.
New York, N. Y	do	March 24–26, 1884.
North Platte, Nebr	Lieut. J. P. Story, acting signal officer	October 9, 10, 1883.
Olympia, Wash. T	Lieut. Frank Greene, Signal Corps, U. S. A	September 16–18, 1883.
Omaha, Nebr	Lieut. J. P. Story, acting signal officer	June 10, 1883.
Oswego, N. Y	Lieut. Joseph S. Powell, Signal Corps, U. S. A.	Feb. 29, and Mar. 1, 1884.
Palestine, Tex	Lieut. R. B. Watkins, Signal Corps, U. S. A	May 1, 2, 1884.
Philadelphia, Pa	Lieut. Joseph S. Powell, Signal Corps, U. S. A.	March 27-29, 1884.
Pittsburg, Pa	Lieut. P. H. Ray, acting signal officer	January 22, 24, 1884.
Port Angeles, Wash. T	Lieut. Frank Greene, Signal Corps, U. S. A.	October 1–3, 1883.

Stations inspected, by whom, and when, during fiscal year ending June 30, 1884.

Station.	By whom inspected.	When inspected.
Portland, Oreg	Lieut. Frank Greene, Signal Corps, U. S. A	October 5–8, 1883.
Portland, Me	Lieut. Joseph S. Powell, Signal Corps, U. S. A.	March 8–10, 1884.
Portsmouth, N. C	Lieut. Robert Craig, acting signal officer	June 27, 28, 1883.
Provincetown, Mass	Lieut. Joseph S. Powell, Signal Corps, U. S. A	March 15, 16, 1884.
Pyaht, Wash. T	Lieut. Frank Greene, Signal Corps, U. S. A	September 30, 1883.
Rochester, N. Y	Lieut. Joseph S. Powell. Signal Corps, U. S. A	February 26, 1884.
Roseburg, Oreg	Lieut. Frank Greene, Signal Corps, U. S. A	October 19–21, 1883.
San Diego, Cal	Lieut. R. H. Fletcher, U. S. A	February 20, 1884.
Sandusky, Ohio	Lieut. P. H. Ray, acting signal officer	March 12, 13, 1884.
Saint Louis, Mo	do	February 27–29, 1884.
Shaw, Fort, Mont	Lieut. J. P. Story, acting signal officer	September 14, 15, 1883.
Shreveport, La	Lieut. R. B. Watkins, Signal Corps, U. S. A	April 28, 29, 1884.
Spokane Falls, Wash. T	Lieut. Frank Greene, Signal Corps, U. S. A	August 28–30, 1883.
Spokane, Fort, Wash. T	do	September 3, 4, 1883.
Springfield, Ill	Lieut. P. H. Ray, acting signal officer	March 1–4, 1884.
Stevens, Fort, Oreg	Lieut. Frank Greene, Signal Corps, U. S. A	September 10, 1883.
Stockton, Fort, Tex	Lieut. L. E. Sebree, Signal Corps U. S. A	October 9, 10, 1883.
Sully, Fort, Dak	Lieut. J. P. Story, acting signal officer	July 23, 1883.
Tatoosh Island, Wash. T	Lieut. Frank Greene, Signal Corps, U. S. A	September 25–27, 1883.
Vicksburg, Miss	Lieut. R. B. Watkins, Signal Corps, U. S. A	April 17, 18, 1884.
Yankton, Dak	Lieut. J. P. Story, acting signal officer	June 14, 1883.
Yates, Fort, Dak	do	July 28, 29, 1883.

APPENDIX 18.

List of places for which stations have been requested but not established, to June 30, 1884.

Place.	Date.
Alabama:	
Auburn (Agricultural and Mechanical College).	May 14, 1872
	Dec. 28, 1880
	Jan. 4, 1881
Coffeeville	Dec. 20, 1882
Eutaw	July 20, 1872
Florence	Apr. 20, 1880
Friendville	Nov. 6, 1875
Marion	Oct. 16, 1881
Trinity	Mar. 4, 1882
Arkansas:	
Fayetteville (Arkansas Industrial University).	Feb. 17, 1874
	Sept. 28, 1881
Fulton	Dec. 28, 1875
	Dec. 21, 1879
Hot Springs	Aug. 2, 1871
	Dec. 10, 1877
Judson University	Aug. 18, 1877
	July 6, 1878
California:	
Bakersfield	May 14, 1874
Cheyenne Wells	July 27, 1877
Oakland (University of California).	Feb. 12, 1874
	Mar. 12, 1881
	Apr. 15, 1884
Table Mountain	Oct. 4, 1883
Tulare	June 29, 1884
Wilmington	Jan. 4, 1881
Colorado:	
Fountain	Dec. 4, 1871
Leadville	Jan. 17, 1880
	Feb. 9, 1881
Mount Massive	Feb. 23, 1882
Summit	Jan. 7, 1880
The Parks of Colorado	May 24, 1871
Connecticut:	
Hartford	Jan. 21, 1875
Mohawk Mountains	Oct. 14, 1882
Race Rock Light-house	Nov. 20, 1880
The National Park	Nov. 7, 1880
Dakota:	
Aberdeen	Feb. 18, 1882
Chamberlain	June 22, 1882
	July 17, 1882
	Nov. 15, 1882
Lisbon	Nov. 16, 1882
Pierre	Jan. 5, 1883
Randall, Fort	Nov. 9, 1871
Richardton	Dec. 6, 1883
Thompson, Fort	June 18, 1874
Young Man's Butte	Dec. 6, 1883
Delaware:	
Cape Henlopen	Dec. 22, 1875
Newark (Delaware College)	Jan. 11, 1872
Ocean View	Apr. 18, 1884
Wilmington	Jan. 24, 1872
Florida:	
Apalachicola	Sept. 10, 1883
Fort Jupiter Light	Dec. 27, 1881
	Dec. 31, 1881
	Jan. 14, 1882
	Feb. 4, 1882
Lawtey	Oct. 27, 1882
Palatka	Feb. 17, 1873
Tallahassee	June 12, 1875
Three or four additional stations in the interior of the State.	May 6, 1875
Titusville	No date.
Georgia:	
Doboy Island	Jan. 25, 1879
New Switzerland	Feb. 3, 1882
Georgia—Continued.	
Rome	Apr. 24, 1874
	Jan. 21, 1875
	Dec. 4, 1875
	Mar. 31, 1876
	Mar. 16, 1877
	July 19, 1878
Idaho:	
Franklin	July 28, 1875
Silver City	Feb. 9, 1876
Illinois:	
Abingdon (Abingdon College)	Apr. 1, 1875
Bloomington	Aug. 30, 1874
Carbondale (Southern Illinois Normal University).	Oct. 1, 1878
	Oct. 2, 1878
Carthage	Sept. 2, 1872
Decatur	Aug. 30, 1874
Galena	Sept. 14, 1871
Grand Town	Mar. 21, 1872
Grayville	June 7, 1878
Jacksonville	Mar. 15, 1875
Metamora	Aug. 8, 1871
Pana	Jan. 17, 1875
Princeton	Aug. 11, 1871
Quincy	Jan. 4, 1872
	July 25, 1879
	Dec. 3, 1879
Sandwich	Jan. 22, 1873
Indiana:	
Crawfordsville (Wabash College).	June 6, 1874
Fort Wayne	Apr. 12, 1872
Lafayette (Purdue University)	Apr. 14, 1879
Leavenworth	Oct. 18, 1882
New Albany	Apr. 12, 1872
Noblesville	July 27, 1883
Rockville	Dec. 8, 1883
Vincennes	June 15, 1873
Iowa:	
Afton	Feb. 17, 1875
Algona	Feb. 14, 1878
Ames (State Agricultural College).	Jan. 23, 1875
Cedar Rapids	Feb. 11, 1881
Fort Dodge	Nov. 4, 1875
Iowa City (State University)	Dec. 14, 1871
	Jan. 6, 1873
	Jan. 3, 1875
Mason City	Oct. 6, 1871
	Dec. 11, 1882
Monticello	Apr. 15, 1877
Sheldon	July 18, 1881
Sioux City	July 18, 1881
Kansas:	
Ellsworth	July 14, 1874
	July 21, 1874
Emporia (State Normal School)	Mar. 6, 1873
	Feb. 2, 1881
Gaylord	Dec. 27, 1879
Grainfield	Mar. 3, 1882
Lawrence (University of Kansas).	Jan. 16, 1873
	May 6, 1873
	Jan. 7, 1881
On plains of Western Kansas and regions to southward and westward.	Dec. 21, 1372
Salina	July 17, 1873
	Apr. 2, 1877
Towanda	Feb. 12, 1872
Wichita	July 12, 1882
Kentucky:	
Anchorage	Mar. 31, 1877

List of places for which stations have been requested, &c.—Continued.

Place.	Date.
Kentucky—Continued.	
Carrolton	Mar. 6, 1881
Lexington	Apr. 22, 1882
Richmond	Apr. 22, 1884
Louisiana:	
Balize	Oct. 31, 1871
Baton Rouge (State University and Agricultural and Mechanical College).	Feb. 25, 1881
Lake Charles	June 12, 1875
	Oct. 15, 1877
Southwest Pass (Pass à l'Outre).	Mar. 20, 1871
Maine:	
Augusta (United States Arsenal).	Feb. 16, 1883
Belfast	Aug. 6, 1872
Calais	June 16, 1874
Crumples Island	Dec. 4, 1881
	Dec. 10, 1881
	Feb. 8, 1884
Cutler	Apr. 8, 1882
Green Mountain	Sept. 21, 1882
Orono (State Agricultural College).	Oct. 19, 1871
	Feb. 17, 1878
Penobscot Bay (entrance)	Jan. 19, 1882
White Head	Feb. 28, 1881
Maryland:	
State Agricultural College	Apr. 18, 1872
	June 21, 1872
Massachusetts:	
Amherst (State Agricultural College).	Mar. 30, 1878
Nantucket	Mar. 8, 1881
Pittsfield	Dec. 20, 1879
South Framingham (State Arsenal).	Apr. 18, 1881
	July 23, 1881
	Aug. 22, 1881
Vineyard Haven	Dec. 18, 1871
Michigan:	
Ann Arbor (University of Michigan).	Nov. 28, 1871
Eagle River	Jan. 21, 1882
Glen Haven	June 11, 1881
	Dec. 4, 1881
	Mar. 4, 1882
Hillsdale	Aug. 6, 1871
Huron City	Jan. 27, 1877
	Feb. 19, 1871
Lansing (State Agricultural College).	Jan. 12, 1875
	Dec. 18, 1883
Leland	Feb. 25, 1882
Manitou Island	Oct. 24, 1881
Niles	July 27, 1881
Paw Paw	Apr. 8, 1876
Port Hope	July 22, 1871
Three Rivers	May 30, 1876
Whitehall	Mar. 29, 1879
	Oct. 6, 1879
Minnesota:	
Breckenridge	Feb. 17, 1881
Detroit	Feb. 2, 1873
Minneapolis (University of Minnesota).	Feb. 21, 1872
New Ulm	July 10, 1872
	Dec. 15, 1881
Northfield (Carleton College)	May 28, 1879
	Nov. 19, 1880
Reed's Landing	June 25, 1877
Mississippi:	
Chatawa (College of the Redemptionist Fathers).	July 13, 1874
Iuka	Mar. 25, 1872
Macon	Jan. 9, 1881
Starkville	June 25, 1884
Winona	July 20, 1882
Missouri:	
Carthage	Aug. 15, 1873
Dromore	Jan. 27, 1883
Glasgow	Mar. 8, 1880
Killingham	Mar. 21, 1884
Lamar	May 21, 1884
Missouri—Continued.	
Louisiana	Aug. 31, 1871
	Jan. 4, 1882
Mason City	Mar. 30, 1884
Pierce City	Apr. 9, 1874
	Nov. 10, 1880
Rolla (Missouri School of Mines).	May 5, 1880
Saint Joseph (University of Missouri).	July 17, 1876
	Jan. 22, 1882
	Mar. 15, 1883
Saint Louis (College of the Christian Brothers).	Mar. 12, 1884
Springfield	Feb. 9, 1884
Montana:	
Bedford	Apr. 10, 1881
Butte	Oct. 11, 1879
Etchetah	Oct. 21, 1881
Livingston	Mar. 15, 1883
Missoula	June 26, 1882
Wolf Point	June 16, 1882
Nebraska:	
Beatrice	Mar. 3, 1874
Columbus	Sept. 5, 1871
Fairbury	May 12, 1876
Lincoln	Mar. 4, 1884
Nebraska City	Aug. 14, 1874
Nevada:	
Carson City	Mar. 6, 1876
New Jersey:	
Camden (The River Iron Works)	July 29, 1874
Neshanic Mountains (Somerset County).	Apr. 12, 1873
Somerset County (latitude, 40° 30′; longitude, 74° 42′).	Dec. 22, 1873
New Hampshire:	
Dover Point	Jan. 13, 1872
Gorham	Mar. 30, 1874
Isles of Shoals	Sept. 10, 1879
Manchester	Jan. 21, 1873
Milton	Jan. 8, 1883
Mount Kearsarge	Oct. 28, 1874
Mount Massilank	Aug. 16, 1871
New Mexico:	
Cimarron	Dec. 8, 1880
New York:	
Alfred Centre (Alfred University).	Jan. 12, 1877
Catskill Mountains	June 21, 1883
Deposit	Apr. 1, 1872
Ithaca (Cornell University)	Aug. 8, 1872
	Nov. 18, 1872
	Nov. 22, 1872
	Jan. 25, 1873
	Jan. 3, 1875
	Mar. 17, 1875
	Apr. 17, 1875
	May 7, 1878
	Aug. 8, 1878
Long Beach (Long Island)	Oct. 16, 1880
Ogdensburg	May 25, 1872
Overlook Mountains	Mar. 7, 1879
Plattsburg	May 28, 1872
Port Jervis	Nov. 8, 1881
Sodus Point	Feb. 14, 1883
Starkey	Aug. 8, 1878
Staten Island	June 9, 1871
	June 20, 1871
Suspension Bridge (Seminary of our Lady of Angels).	May 14, 1880
Syracuse	May 9, 1874
	May 11, 1874
The Vista (Catskill Mountains).	Feb. 6, 1878
Ticonderoga	Feb. 21, 1883
Watertown	June 21, 1871
	June 21, 1873
	Mar. 9, 1876
Whitestone (Long Island)	Dec. 29, 1881
North Carolina:	
Alleghany Mountains	July 26, 1873

List of places for which stations have been requested, &c.—Continued.

Place.	Date.
North Carolina—Continued.	
Beaufort	Feb. 10, 1879
	Feb. 15, 1881
	July 24, 1882
Black Dome (Black Mountains).	Feb. 12, 1872
	Dec. 10, 1880
	Jan. 28, 1881
Body Island	Apr. 17, 1871
Chadbourne	July 4, 1883
Danville (Mocksville and Southwestern Railroad).	July 29, 1881
Great Natahalee (Bald Mountains).	Apr. 1, 1872
Hibritton Mountains	Jan. 28, 1881
Highlands	Dec. 13, 1881
	Dec. 29, 1881
	Dec. 30, 1881
	Feb. 12, 1884
Lenoir	July 28, 1875
Mount Mitchell	Aug. 29, 1878
Mount Stooley	Oct. 19, 1882
Ocracoke	June 29, 1877
Roane Mountain	July 19, 1878
Statesville	Nov. 17, 1877
	Jan. 29, 1879
Swansborough	Sept. 4, 1879
Winston	Mar. 17, 1880
Ohio:	
Dayton (National Soldiers' Home).	Feb. 11, 1873
	Feb. 1, 1875
Hillsborough	Sept. 8, 1881
Ironton	Mar. 25, 1875
Kelly's Island	May 25, 1876
	Dec. 17, 1879
	Aug. 19, 1880
Oxford	Feb. 22, 1882
	Aug. 5, 1882
Springfield	Feb. 7, 1881
Xenia	June 30, 1871
Oregon:	
Baker City	Feb. 9, 1876
Corvallis	Jan. 17, 1884
Point Adams	Aug. 26, 1880
Tillamook Rock	Aug. 26, 1880
	Dec. 27, 1880
	Jan. 3, 1881
	June 20, 1881
	Jan. 31, 1882
	Mar. 8, 1882
Pennsylvania:	
Altoona	Feb. 17, 1872
Berks (summit of Blue Ridge Mountains).	Sept. 9, 1881
Carlisle	May 4, 1876
Catasauqua	Sept. 11, 1871
Chambersburg	June 12, 1871
Easton	Aug. 15, 1871
Franklinville	Dec. 1, 1882
Gallatin	Feb. 17, 1872
Greensborough	Dec. 28, 1872
	Jan. 10, 1873
Harrisburg	Aug. 15, 1871
	Feb. 26, 1881
	Oct 29, 1881
Heilmandale	Apr. 1, 1872
Hummelstown	June 10, 1879
Kutztown (Keystone State Normal School).	Sept. 13, 1872
Media	Oct. 1, 1883
Mount Pisgah (Bradford County).	Mar. 2, 1875
Mount Pleasant (Mount Pleasant Academy).	Aug. 11, 1871
Tionesta	Feb. 9, 1884
Wilkes Barre	Apr. 8, 1881
South Carolina:	
Aiken	July 16, 1872
	Sept. 2, 1872
	Mar. 31, 1875
Laurens	No date.
Tennessee:	
Bristol	Aug. 15, 1871
Clarksville	Dec. 21, 1881
Moffat	Jan. 29, 1876
Tennessee—Continued.	
Sewanee (University of the South).	June 10, 1872
	June 26, 1877
	Apr. 22, 1881
	Dec. 17, 1881
Tennessee Ridge	June 18, 1883
Texas:	
Abilene	Feb. 26, 1884
Belton	May 28, 1879
Caddo Peak	Nov. 28, 1883
Comfort	Sept. 2, 1880
	Sept. 6, 1880
	Nov. 15, 1880
Fort Worth	May 25, 1881
Galveston (north and west of)	Mar. 6, 1873
Lampasas	Feb. 14, 1883
Utah:	
Beaver City	July 8, 1872
Ogden	Apr. 26, 1879
Vermont:	
Ascutney Mountain	May 24, 1881
Bennington (Mount Anthony)	Jan. 27, 1875
Northfield (Norwich University).	Mar. 15, 1872
Randolph (State Normal School)	Mar. 14, 1881
Stowe	Dec. 22, 1876
Virginia:	
Bald Knob (Giles County)	July 21, 1874
	Dec. 22, 1876
Blacksburg	Dec. 22, 1883
Charlottesville (University of Virginia).	Mar. 2, 1878
Christianburg	Aug. 15, 1871
Danville	Dec. 18, 1875
	July 15, 1879
	May 23, 1882
Elliott's Knob	May 23, 1879
Manassas	Dec. 27, 1871
Mountains (additional stations on).	May 17, 1871
Mount Lake	July 21, 1874
Richmond	Apr. 3, 1871
Staunton	Aug. 15, 1871
	Oct. 9, 1882
Winchester	Aug. 15, 1871
Washington Territory:	
Cape Disappointment	Sept. 30, 1873
	Dec. 9, 1881
Cape Hancock	Feb. 12, 1882
Port Townsend	Mar. 8, 1878
	Dec. 16, 1878
	Dec. 17, 1878
	Mar. 5, 1880
Seattle	Oct. 26, 1878
Semiahmoo	No date.
Walla Walla	Feb. 9, 1876
West Virginia:	
Ceredo	June 10, 1876
	Nov. 21, 1876
Maywood	Oct. 15, 1883
Wisconsin:	
Bailey's Harbor	Feb. 16, 1882
	Apr. 16, 1882
	Jan. 8, 1883
Carlton	Jan. 10, 1874
	Jan. 26, 1874
Fond du Lac	Dec. 15, 1874
Hingham	Apr. 19, 1875
Janesville	Aug. 7, 1881
Mineral Point	Dec. 1, 1873
Oshkosh	Jan. 22, 1875
Palmyra	May 19, 1874
Prairie du Chien	Feb. 27, 1884
Ripon (Ripon College)	July 21, 1877
	Feb. 5, 1878
Wyoming:	Feb. 29, 1878
Fred Steele, Fort	Feb. 24, 1881
Miscellaneous:	
Atlantic Ocean	Aug. 12, 1882
Chippowayan, Fort (Canada)	Sept. 11, 1882
Havana (Cuba)	Sept. 14, 1882
Prince Albert (North Saskatchewan River, Manitoba).	Aug. 31, 1882
State Agricultural Colleges	Feb. 29, 1872

APPENDIX 19.

Meteorological data were furnished 254 different persons during the year ending June 30, 1884, at their request, for the following purposes, viz:

To be used in State or United States courts as evidence.

To be used in compiling works or publications on meteorology, hygiene, agriculture, manufactures, commerce, &c.

To assist in manufactures, the prosecution of the arts, and advancement of the sciences.

To settle questions as to the relations of meteorology and agriculture.

In deciding the cause and locating the responsibility in railroad and marine disasters.

In fixing the responsibility of damage to freight in transit by common carriers.

In acquainting immigrants with the climatology of districts open to settlement.

In informing invalids of the desirability of the meteorology of sections affecting their diseases.

Miscellaneous purposes.

APPENDIX 20.

Exhibiting the communications sent from and received at the Signal Office, Washington City (exclusive of telegrams), from July 1, 1883, *to June* 30, 1884.

SENT.

To heads of Departments and Bureaus	3,418
To non-commissioned officers in charge of stations in reference to their duties	9,864
In reply to applications for stations	295
To telegraph companies in reference to transmission of weather reports, and the erection of telegraph lines, &c	300
To boards of trade, chambers of commerce, &c	187
To foreign correspondents relating to simultaneous reports	702
To foreign correspondents in general	665
To voluntary observers throughout the United States	5,038
In relation to enlistments, discharges, &c	1,082
In relation to publications	2,600
To postmasters relative to "Farmers' Bulletins," &c	160
To railroad companies relative to establishing stations, furnishing "indications," &c	145
In relation to duties and discipline at Signal Service School of Instruction at Fort Myer, Virginia	244
In relation to furnishing meteorological instruments, charts, books, forms, &c	277
In relation to building, sale, repair, &c., of telegraph lines	63
Orders, instructions, circulars, &c	69,750
To manufacturers and others in reference to instruments, equipments, &c.	2,475
To non-commissioned officers in charge of stations and other enlisted men in reference to property and money accounts	12,203
In reference to quarterly returns of officers, &c	2,772
Authorizing purchases and expenditures	1,792
Miscellaneous	11,691
Total	125,723

RECEIVED.

From heads of Departments and Bureaus	5,137
Applications for establishment of new stations	46
From telegraph companies in reference to the transmission of weather reports and the construction of telegraph lines, &c	198
From boards of trade, chambers of commerce, &c	102
From foreign correspondents	280
Surgeons' certificates	503
Examination papers	70
From non-commissioned officers in charge of stations in reference to their duties	8,708
Returns, accounts, descriptive lists, &c	1,291
From foreign correspondents relating to simultaneous weather reports	7,053
From United States naval vessels and stations (received through the Navy Department)	2,721
From voluntary observers throughout the United States relating to observations and reports	3,981
From United States military posts (received through the office of the Surgeon-General)	651
Relating to duties and discipline at Signal Service School of Instruction at Fort Myer, Virginia	239
Relating to instruction in military signaling	72
Applications for enlistment	500

Recruiting and enlistment	117
Instruction reports of non-commissioned officers and assistants	2,250
Reports from railroad stations throughout the United States in reference to weather reports	25,208
Meteorological forms, &c., from non-commissioned officers in charge of stations	212,957
Reports from postmasters throughout the United States, in reference to weather bulletins	103,536
From manufacturers and others, relating to instruments, equipments, &c.	1,563
From officers, concerning property, quarterly returns, &c.	2,043
From non-commissioned officers in charge of stations, and other enlisted men, relating to property and money accounts	19,326
Miscellaneous	18,999
Total	417,551
Total sent	125,723
Total received	417,551
Total sent and received	543,274

Table showing the number of cipher words and messages sent and received by telegraph at the Signal Office, Washington City, from July 1, 1883, *to June* 30, 1884.

Cipher words of weather reports sent	36,500
Telegrams other than weather reports sent	9,510
Telegrams on sea-coast lines sent	7,200
Cipher words of weather reports on sea-coast lines sent	116,070
Cipher words of weather reports received	685,490
Telegrams other than weather reports received	12,240
Special river cipher words received	1,910
Telegrams on sea-coast lines received	10,800
Cipher words of weather reports on sea-coast lines received	140,300
Mailed reports from non-commissioned officers in charge of stations	63,700
Total	1,083,720

APPENDIX 21.

Classified list of stations of the Signal Service, United States Army, in operation on June 30, 1884.

[*a.* Displays cautionary signals. *b.* Takes observations of temperature of the water in river or harbor at 2 p. m. (Washington time), daily. *c.* Takes observations of the stage of water in the river at 2 p. m. (Washington time), daily. *d.* Prints Farmers' Bulletins. *e.* Takes cotton-region observation at 5 p. m. (local time), daily. *f.* Fort Myer, Virginia, is maintained as a first-class station whenever a class is under instruction; at other times as a third-class station. *g.* Takes an observation at 3 a. m. (Washington time), daily. *h.* Displays cold-wave signal.]

Alabama.—Stations of the first class: Mobile *b, a, e,* Montgomery *e.* Special display station: Fort Morgan. Special river station: Decatur. Special cotton-region stations: Birmingham, Calera, Decatur, Eufaula, Evergreen, Greenville, Fort Deposit, Livingston, Marion, Pine Apple, Opelika, Scottsborough, Selma, Tuscumbia.

Alaska.—Stations of the first class: Fort Alexander, Fort Saint Michaels, Sitka, Unalashka. Stations of the second class: Anvik, Atka, Cordova Bay, Hoochnahoo, Hoonyah, Kenai, Koskokvim, Port Etches, Pyramid Harbor, Tananah, Tcha-tow-klin, Fort Wrangell, Yakutat Bay. Stations of the third class: Golovin Bay, Harrisburg (or Juneau City), Mission, Nuduckayet, Nulato, Fort Reliance, Saint George Island, Ugashik.

Arizona.—Stations of the first class: Fort Apache, Fort Grant, Prescott *g,* Camp Thomas, Yuma *c.* Stations of the third class: Apache Pass, Maricopa, Fort McDowell, Phœnix, San Carlos Agency, Fort Verde, Wickenburg, Willcox. Station of the fourth class: Ash Fork.

Arkansas.—Stations of the first class: Fort Smith *c, e,* Little Rock *c, e, h.* Special river station: Helena *e.* Special cotton-region stations: Arkansas City, Brinkley, Devall's Bluff, Kensett, Madison, Magnolia, Malvern, Monticello, Newport, Pine Bluff, Prescott, Russellville, Texarkana.

Behring Sea.—Station of the first class: Behring's Island.

California.—Stations of the first class: Cape Mendocino, Los Angeles, Red Bluff *c,* Sacramento *c,* San Diego, San Francisco *b, d, g.* Station of the third class: Fort Bidwell. Special river stations: Colusa, Folsom City, Marysville, Oroville.

Colorado.—Stations of the first class: Denver, Pike's Peak, West Las Animas. Stations of the third class: Durango, Montrose.

Connecticut.—Stations of the first class: New Haven *b, a,* New London *b, a.* Special display stations: New Haven Light, Stonington.

Dakota.—Stations of the first class: Fort Bennett, Bismarck *c, g,* Fort Buford, Deadwood, Huron, Fort Totten, Yankton *c.* Stations of the third class: Fort Meade, Fort Sisseton, Fort Sully, Webster, Fort Yates. Station of the fourth class: Larimore.

Delaware.—Station of the first class: Delaware Breakwater *b, a.*

District of Columbia.—Station of the first class: Washington *d, g.*

Florida.—Stations of the first class: Cedar Keys *b, a, e,* Jacksonville *b, a,* Key West *b, a,* Pensacola *b, a,* Sanford. Special display stations: Fernandina *e,* Fort George Island, Saint Augustine, Sand Key Light. Special cotton-region stations: Live Oak, Waldo.

Georgia.—Stations of the first class: Atlanta *e,* Augusta *b, c, e,* Savannah *b, a, e.* Special display stations: Brunswick, Tybee Island. Special cotton-region stations: Albany, Allapaha, Athens, Bainbridge, Camak, Cartersville, Columbus, Dalton, Eastman, Fort Gaines, Gainesville, Griffin, Jessup, Macon, Millen, Newnan, Quitman, Smithville, Thomasville, Toccoa, Union Point, Washington, Way Cross, Waynesborough, West Point.

Idaho.—Stations of the first class: Boise City, Lewiston. Station of the third class: Fort Coeur d'Alene.

Illinois.—Stations of the first class: Cairo *c,* Chicago *b, a, d, g, h,* Springfield. Special river stations: Mount Carmel, Peoria, Warsaw.

Indiana.—Station of the first class: Indianapolis. Special river station: Evansville. Special printing station: Logansport.

Indian Territory.—Station of the first class: Fort Sill. Stations of the third class: Cantonment, Fort Reno, Fort Supply.

Iowa.—Stations of the first class: Davenport *c,* Des Moines *d,* Dubuque *c,* Keokuk *c.* Special river stations: Le Claire, Muscatine. Special printing station: Burlington.

Kamtchatka.—Station of the second class: Petropaulovski.

Kansas.—Stations of the first class: Dodge City, Leavenworth *c*, *d*.

Kentucky.—Station of the first class: Louisville *c*, *h*. Special river station: Paducah.

Labrador.—Station of the first class: Fort Chimo, (Ungava Bay).

Louisiana.—Stations of the first class: New Orleans *c*, *a*, *e*, Shreveport *c*, *e*. Special river station: Monroe *e*. Special cotton-region stations: Alexandria, Amite City, Cheneyville, Coushatta Chute, Lafayette, Minden, Natchitoches, Opelousas, Whiteville.

Maine.—Stations of the first class: Eastport *b*, *a*, Portland *b*, *a*. Special display stations: Bath, Boothbay, Rockland, Southwest Harbor. Special printing station: Bangor.

Maryland.—Station of the first class: Baltimore *b*, *a*. Station of the third class: Ocean City.

Massachusetts.—Station of the first class: Boston *b*, *a*, *d*, *g*. Station of the third class: Thatcher's Island *a*. Special display stations: Bass River Light, Fall River, Gloucester, Highland Light, Hyannis, Marblehead, New Bedford, Newburyport, Provincetown, Wood's Holl.

Michigan.—Stations of the first class: Alpena *b*, *a*, Detroit *b*, *a*, *d*, Escanaba *b*, *a*, Grand Haven *b*, *a*, Mackinaw City *b*, *a*, Marquette *b*, *a*, Port Huron *a*. Special display stations: Bay City, Charlevoix, East Tawas, Elk Rapids, Frankfort, Ludington, Fort Mackinac, Manistee, Menominee, Montague, Muskegon, Northport, Pentwater, Petoskey, Saint Ignace, Saint Joseph, Sand Beach, South Haven, Traverse City.

Minnesota.—Stations of the first class: Duluth *b*, *a*, Moorhead, Saint Paul *c*, Saint Vincent.

Mississippi.—Stations of the first class: Vicksburg *c*, *e*. Special cotton-region stations: Aberdeen, Batesville, Brookhaven, Columbus, Corinth, Edwards, Grenada, Hazlehurst, Hernando, Holly Springs, Jackson, Lake, Macon, Meridian, Natchez, Okolone, Oxford, Waynesborough.

Missouri.—Stations of the first class: Saint Louis *c*, *d*, *g*, *h*. Special river stations: Boonville, Brunswick, Hermann, Jefferson City, Kansas City, Lexington, Saint Joseph.

Montana.—Stations of the first class: Fort Assinaboine, Fort Beuton *e*, Fort Custer, Helena, Fort Maginnis, Poplar River, Fort Shaw. Stations of the fourth class: Glendive, Terry's Landing.

Nebraska.—Stations of the first class: North Platte, Omaha *c*. Special river station: Plattsmouth.

New Hampshire.—Station of the first class: Mount Washington. Special display station: Portsmouth.

New Jersey.—Stations of the first class: Atlantic City *b*, *a*, Barnegat City *a*, Cape May *a*, Sandy Hook *b*, *a*. Station of the third class: Little Egg Harbor *a*.

New Mexico.—Stations of the third class: Fort Craig, Florida Station, San Marcial, Fort Stanton, Watrous.

New York.—Stations of the first class: Albany *d*, *h*, Buffalo *b*, *a*, *d*, *g*, *h*, New York City *b*, *a*, *d*, *g*, Oswego *a*, Rochester. Special display stations: Cape Vincent, Charlotte, City Island, Dunkirk, Fire Island, North Fair Haven.

North Carolina.—Stations of the first class: Charlotte *e*, Hatteras *a*, Kittyhawk *a*, *g*, Fort Macon *a*, Smithville *b*, *a*, Wilmington *b*, *a*, *e*. Stations of the third class: New River Inlet, Scott's Hill, Wash Woods. Special cotton-region stations: Goldsborough, Lumberton, New Berne, Raleigh, Salisbury, Wadesborough, Weldon.

Ohio.—Stations of the first class: Cincinnati *c*, *d*, *g*, *h*, Cleveland *b*, *a*, Columbus, Sandusky *b*, *a*, Toledo *b*, *a*. Special river station: Marietta. Special display station: Ashtabula.

Oregon.—Stations of the first class: Portland *c*, *b*, Roseburg. Stations of the third class: Ashland, Astoria, Fort Klamath, Lake View, Linkville. Special river stations: Albany, Eugene City, Umatilla.

Pennsylvania.—Stations of the first class: Erie *a*, Philadelphia *d*, *g*, Pittsburgh *c*, *d*, *g*. Special river stations: Brownsville, Confluence, Freeport, Mahoning, New Geneva, Oil City, Saltsburg.

Rhode Island.—Station of the first class: Block Island *b*, *a*. Stations of the third class: Narragansett Pier, Point Judith *a*. Special display stations: Bristol, Newport, Southeast Light, Block Island.

South Carolina.—Station of the first class: Charleston *b*, *a*, *e*. Special display station: Port Royal. Special cotton-region stations: Allendale, Anderson, Batesburg, Blackville, Branchville, Cheraw, Chester, Columbia, Florence, Greenville, Greenwood, Hardeeville, Jacksonborough, Kingstree, Saint George's, Saint Matthew's, Spartanburg, Yemassee.

Tennessee.—Stations of the first class: Chattanooga *c*, *h*, Knoxville *c*, Memphis *c*, *e*, Nashville *c*, *d*, *e*, *h*. Special river stations: Charleston, Clinton, Johnsonville, Kingston, Leadvale, Loudon, Rockwood, Strawberry Plains. Special cotton-region stations:

Bolivar, Brownsville, Covington, Dyersburg, Grand Junction, Milan, Paris, Withe.

Texas.—Stations of the first class: Brownsville, Fort Concho, Fort Davis, Fort Elliott, El Paso, Galveston *b*, *a*, *e*, Indianola *b*, *a*, Palestine *e*, Rio Grande City, Fort Stockton. Stations of the third class: Henrietta, Marfa. Special display station: Corpus Christi. Special cotton-region stations: Austin, Beaumont, Belton, Columbia, Corsicana, Cuero, Dallas, Hearne, Hempstead, Houston, Huntsville, Longview, Luling, Orange, Paris, San Antonio, Sour Lake, Tyler, Waco, Weatherford, Weimar.

Utah.—Station of the first class: Salt Lake City. Station of the third class: Fort Thornburg.

Virginia.—Stations of the first class: Cape Henry *a*, Chincoteague *b*, *a*, Lynchburg, Fort Myer, *f*, Norfolk *b*, *a*. Special display station: Fort Monroe.

Washington Territory.—Stations of the first class: Fort Canby *b*, Dayton, Olympia, Spokane Falls, Tatoosh Island. Stations of the third class: Neah Bay, Port Angeles, Pysht, Fort Spokane. Stations of the fourth class: Crescent Bay, Hoko.

West Virginia.—Special river station: Wheeling.

Wisconsin.—Stations of the first class: La Crosse *c*, Milwaukee *b*, *a*. Special display stations: Ahnapee, Green Bay, Kenosha, Kewaunee, Manitowoc, Racine, Sheboygan, Sturgeon Bay.

Wyoming.—Station of the first class: Cheyenne. Station of the third class: Fort Bridger. Station of the fourth class: Carter.

List of full reporting stations opened during the year ending June 30, 1884.

Canby, Fort, Wash.
Custer Fort, Mont. (re-established).
Rio Grande City, Tex. (re-established).
Rochester, N. Y. (re-established).
Sandusky, Ohio (re-established).
Tatoosh Island, Wash.
Totten, Fort, Dak.

List of full reporting stations discontinued during the year ending June 30, 1884.

Coleman City, Tex.
Henrietta, Tex.
Ooglaamie (Point Barrow), Alaska.
Portsmouth, N. C.
Provincetown, Mass.
Verde, Fort, Ariz.

APPENDIX 22.

SIGNAL SERVICE STATIONS IN OPERATION JUNE 30, 1884.

[*a* Displays cautionary signals. *b* Takes observation of temperature of the water in river or harbor at 2 p. m. (Washington time) daily. *c* Takes observation of the stage of water in the river at 2 p. m. (Washington time) daily. *d* Prints Farmers' Bulletin. *e* Takes cotton-region observation at 5 p. m. (local time) daily. *f* Fort Myer, Va., is maintained as a first-class station whenever a class is under instruction; at other times as a third-class station. *h* Displays cold-wave signal.]

Stations of the first order making a continuous record by means of self-registering instruments.

Washington, D. C. *d*

Stations of the second order taking six observations daily, reporting three times a day by telegraph and monthly by mail.

Bismarck, Dak. *c*
Boston, Mass. *b, a, d*
Buffalo, N. Y. *b, a, d, h*
Chicago, Ill. *b, a, d, h*
Cincinnati, Ohio *c, d, h*
Kitty Hawk, N. C. *a*
New York City *b, a, d*
Philadelphia, Pa. *d*
Pittsburgh, Pa. *c, d*
Prescott, Ariz.
Saint Louis, Mo. *c, d, h*
San Francisco, Cal. *b, d*

Stations of the second order taking five observations daily, reporting three times a day by telegraph and monthly by mail.

Albany, N. Y. *d, h*
Alpena, Mich. *b, a*
Atlanta, Ga. *e*
Atlantic City, N. J. *b, a*
Augusta, Ga. *b, c, e*
Baltimore, Md. *b, a*
Barnegat City, N. J. *a*
Block Island, R. I. *b, a*
Cairo, Ill. *c*
Cape Henry, Va. *a*
Cedar Keys, Fla. *b, a, e*
Charleston, S. C. *b, a, e*
Charlotte, N. C. *e*
Chattanooga, Tenn. *c, h*
Cheyenne, Wyo.
Chincoteague, Va. *b, a*
Cleveland, Ohio *b, a*
Columbus, Ohio.
Concho, Fort, Tex.
Custer, Fort, Mont.
Davenport, Iowa. *c*
Deadwood, Dak.
Delaware Breakwater, Del. *b, a*
Denver, Colo.
Des Moines, Iowa, *d*
Detroit, Mich. *b, a, d*
Dodge City, Kans.
Eastport, Me. *b, a*
El Paso, Tex.
Erie, Pa. *a*
Escanaba, Mich. *b, a*
Fort Smith, Ark. *c, e*
Galveston, Tex. *b, a, e*
Grand Haven, Mich. *b, a*
Hatteras, N. C. *a*
Huron, Dak.
Indianapolis, Ind.
Indianola, Tex. *b, a*
Jacksonville, Fla. *b, a*
Keokuk, Iowa. *c*
Key West, Fla. *b, a*
Knoxville, Tenn. *c*
La Crosse, Wis. *c*
Leavenworth, Kans. *c, d*
Little Rock, Ark. *c, e, h*
Los Angeles, Cal.
Louisville, Ky. *c, h*
Lynchburg, Va.
Mackinaw City, Mich. *b, a*
Macon, Fort, N. C. *a*
Marquette, Mich. *b, a*
Memphis, Tenn. *c, e*
Milwaukee, Wis. *b, a*
Mobile, Ala. *b, a, e*
Montgomery, Ala. *e*
Mount Washington, N. H.
Moorhead, Minn.
Nashville, Tenn. *c, d, e, h*
New Haven, Conn. *b, a*
New Orleans, La. *c, a, e*
Norfolk, Va. *b, a*
North Platte, Nebr.
Olympia, Wash.
Omaha, Nebr. *c*
Oswego, N. Y. *a*
Palestine, Tex. *e*
Pensacola, Fla. *b, a*
Port Huron, Mich. *a*
Portland, Me. *b, a*
Portland, Oreg. *c, b*
Red Bluff, Cal. *c*
Rio Grande City, Tex.
Rochester, N. Y.
Roseburg, Oreg.
Sacramento, Cal. *e*
Saint Paul, Minn. *c*
Saint Vincent, Minn.
Salt Lake City, Utah
San Diego, Cal.
Sandusky, Ohio. *b, a*
Sandy Hook, N. J. *b, a*
Sanford, Fla.
Savannah, Ga. *b, a, e*
Shreveport, La. *c, e*
Smithville, N. C. *b, a*
Springford, Ill.
Toledo, Ohio, *b, a*
Vicksburg, Miss. *c, e*
West Las Animas, Colo.
Wilmington, N. C. *b, a, e*
Yankton, Dak. *c*
Yuma, Ariz. *c*

Taking five observations daily, reporting once a day by telegraph and monthly by mail.

Dubuque, Iowa. *c*

Taking five observations daily, and reporting monthly by mail.

Boise City, Idaho.
Chimo, Fort (Ungava Bay), Labrador.
Myer, Fort, Va. *f*
New London, Conn. *b*, *a*
Pike's Peak, Colo.
Sitka, Alaska.

Taking three observations daily, reporting three times a day by telegraph and monthly by mail.

Apache, Fort, Ariz.
Assinaboine, Fort, Mont.
Bennett, Fort, Dak.
Benton, Fort, Mont. *c*
Brownsville, Tex.
Buford, Fort, Dak.
Canby, Fort, Wash. *b*
Cape Mendocino, Cal.
Duluth, Minn. *b*, *a*
Elliott, Fort, Tex.
Helena, Mont.
Lewiston, Idaho.
Maginnis, Fort, Mont.
Poplar River, Mont.
Shaw, Fort, Mont.
Sill, Fort, Ind. T.
Spokane Falls, Wash.
Stockton, Fort, Tex.
Tatoosh Island, Wash.
Totten, Fort, Dak.

Taking three observations daily, and reporting monthly by mail.

Alexander, Fort, Alaska.
Behring's Island, Behring Sea.
Cape May, N. J. *a*
Davis, Fort, Tex.
Dayton, Wash.
Grant, Fort, Ariz.
Saint Michael's, Fort, Alaska.
Thomas, Camp, Ariz.
Unalashka, Alaska.

Stations of the third order.—Taking two observations daily (at 3 p. m. and 11 p. m., Washington time), and reporting monthly by mail.

Anvik, Alaska.
Atka, Alaska.
Cordova Bay, Alaska.
Hoochnahoo, Alaska.
Hoonyah, Alaska.
Kenai, Alaska.
Koskokvim, Alaska.
Petropaulovski, Kamtchatka.
Port Etches, Alaska.
Pyramid Harbor, Alaska.
Tananah, Alaska.
Tcha-tow-klin, Alaska.
Wrangell, Fort, Alaska.
Yakutat Bay, Alaska.

Taking one observation daily (at the hour of sunset), and reporting monthly by mail.

Apache Pass, Ariz.
Ashland, Oreg.
Astoria, Oreg.
Bidwell, Fort, Cal.
Bridger, Fort, Wyo.
Cantonment, Ind. T.
Cœur d'Alene, Fort, Idaho.
Craig, Fort, N. Mex.
Durango, Colo.
Florida Station, N. Mex.
Golovin Bay, Alaska.
Harrisburg (or Junean City), Alaska.
Henrietta, Tex.
Klamath, Fort, Oreg.
Lakeview, Oreg.
Linkville, Oreg.
Little Egg Harbor, N. J. *a*
Marfa, Tex.
Maricopa, Ariz.
McDowell, Fort, Ariz.
Meade, Fort, Dak.
Mission, Alaska.
Montrose, Colo.
Narragansett Pier, R. I.
Neah Bay, Wash.
New River Inlet, N. C.
Nuduckayet, Alaska.
Nulato, Alaska.
Ocean City, Md.
Phœnix, Ariz.
Point Judith, R. I. *a*
Port Angeles, Wash.
Pysht, Wash.
Reliance, Fort, Alaska.
Reno, Fort, Ind. T.
Saint George Island, Alaska.
San Carlos Agency, Ariz.
San Marcial, N. Mex.
Scott's Hill, N. C.
Sisseton, Fort, Dak.
Spokane, Fort, Wash.
Stanton, Fort, N. Mex.
Sully, Fort, Dak.
Supply, Fort, Ind. T.
Thatcher's Island, Mass. *a*
Thornburg, Fort, Utah.
Ugashik, Alaska.
Verde, Fort, Ariz.
Wash Woods, N. C.
Watrous, N. Mex.
Webster, Dak.
Wickenburg, Ariz.
Willcox, Ariz.
Yates, Fort, Dak.

Repair stations on the United States military telegraph lines at which no observations are taken.

Ash Fork, Ariz.
Carter, Wyo.
Crescent Bay, Wash.
Glendive, Mont.
Hoko, Wash.
Larimore, Dak.
Terry's Landing, Mont.

Special printing stations.

Bangor, Me.
Burlington, Iowa.
Logansport, Ind.

Display stations.

Ahnapee, Wis.
Ashtabula, Ohio.
Bass River Light, Mass.
Bath, Me.
Bay City, Mich.
Boothbay, Me.
Bristol, R. I.
Brunswick, Ga.
Cape Vincent, N. Y.
Charlevoix, Mich.
Charlotte, N. Y.
City Island, N. Y.
Corpus Christi, Tex.
Dunkirk, N. Y.
East Tawas, Mich.
Elk Rapids, Mich.
Fall River, Mass.
Fire Island, N. Y.
Fort George Island, Fla.
Frankfort, Mich.
Gloucester, Mass.
Green Bay, Wis.
Highland Light, Mass.
Hyannis, Mass.
Kenosha, Wis.
Kewaunee, Wis.
Ludington, Mich.
Mackinac, Fort, Mich.
Manistee, Mich.
Manitowoc, Wis.
Marblehead, Mass.
Menominee, Mich.
Monroe, Fort, Va.
Montague, Mich.
Morgan, Fort, Ala.
Muskegon, Mich.
New Bedford, Mass.
Newburyport, Mass.
New Haven Light, Conn.
Newport, R. I.
North Fair Haven, N. Y.
Northport, Mich.
Pentwater, Mich.
Petoskey, Mich.
Port Royal, S. C.
Portsmouth, N. H.
Provincetown, Mass.
Racine, Wis.
Rockland, Me.
Saint Augustine, Fla.
Saint Ignace, Mich.
Saint Joseph, Mich.
Sand Beach, Mich.
Sand Key Light, Fla.
Sheboygan, Wis.
Southeast Light, Block Island, R. I.
South Haven, Mich.
Southwest Harbor, Me.
Stonington, Conn.
Sturgeon Bay, Wis.
Traverse City, Mich.
Tybee Island, Ga.
Wood's Holl, Mass.

Special river stations.

[Observations of the stage of water in the river are taken at 2 p. m. (Washington time) daily.]

Albany, Oreg.
Boonville, Mo.
Brownsville, Pa.
Brunswick, Mo.
Charleston, Tenn.
Clinton, Tenn.
Colusa, Cal.
Confluence, Pa.
Decatur, Ala.
Eugene City, Oreg.
Evansville, Ind.
Folsom City, Cal.
Freeport, Pa.
Hermann, Mo.
Jefferson City, Mo.
Johnsonville, Tenn.
Kansas City, Mo.
Kingston, Tenn.
Leadvale, Tenn.
Le Claire, Iowa.
Lexington, Mo.
Loudon, Tenn.
Mahoning, Pa.
Marietta, Ohio.
Marysville, Cal.
Mount Carmel, Ill.
Muscatine, Iowa.
New Geneva, Pa.
Oil City, Pa.
Oroville, Cal.
Paducah, Ky.
Peoria, Ill.
Plattsmouth, Nebr.
Rockwood, Tenn.
Saint Joseph, Mo.
Saltsburg, Pa.
Strawberry Plains, Tenn.
Umatilla, Oreg.
Warsaw, Ill.
Wheeling, W. Va.

SPECIAL COTTON REGION STATIONS AND CENTERS.

[One observation made daily at 5 p. m. (central time).]

Wilmington, N. C. (center).

Cheraw, S. C.
Florence, S. C.
Goldsborough, N. C.
Lumberton, N. C.
New Berne, N. C.
Raleigh, N. C.
Salisbury, N. C.
Wadesborough, N. C.
Weldon, N. C.

Charleston, S. C. (center).

Branchville, S. C.
Hardeeville, S. C.
Jacksonborough, S. C.
Kingstree, S. C.
Saint George's, S. C.
Saint Matthew's, S. C.
Yemassee, S. C.

Augusta, Ga. (center).

Allendale, S. C.
Athens, Ga.
Batesburg, S. C.
Blackville, S. C.
Camak, Ga.
Chester, S. C.
Columbia, S. C.
Greenwood, S. C.
Union Point, Ga.
Washington, Ga.
Waynesborough, Ga.

Savannah, Ga. (center).

Albany, Ga.
Allapaha, Ga.
Bainbridge, Ga.
Eastman, Ga.
Fernandina, Fla.[a]
Fort Gaines, Ga.
Jessup, Ga.
Live Oak, Fla.
Millen, Ga.
Quitman, Ga.
Smithville, Ga.
Thomasville, Ga.
Waldo, Fla.
Way Cross, Ga.

Atlanta, Ga. (center).

Anderson, S. C.
Cartersville, Ga.
Columbus, Ga.
Dalton, Ga.
Gainesville, Ga.
Greenville, S. C.
Griffin, Ga.
Macon, Ga.
Newnan, Ga.
Spartanburgh, S. C.
Toccoa, Ga.
West Point, Ga.

Montgomery, Ala. (center).

Birmingham, Ala.
Calera, Ala.
Eufaula, Ala.
Fort Deposit, Ala.
Greenville, Ala.
Marion, Ala.
Opelika, Ala.
Pine Apple, Ala.
Selma, Ala.

Mobile, Ala. (center).

Aberdeen, Miss.
Columbus, Miss.
Evergreen, Ala.
Livingston, Ala.
Macon, Miss.
Meridian, Miss.
Okolona, Miss.
Waynesborough, Miss.

New Orleans, La. (center).

Alexandria, La.
Amite City, La.
Brookhaven, Miss
Cheneyville, La.
Coushatta Chute, La.
Hazlehurst, Miss.
Lafayette, La.
Minden, La.
Natchez, Miss.
Natchitoches, La.
Opelousas, La.
Whiteville, La.

Galveston, Tex. (center).

Austin, Tex.
Beaumont, Tex.
Belton, Tex.
Columbia, Tex.
Corsicana, Tex.
Cuero, Tex.
Dallas, Tex.
Hearne, Tex.
Hempstead, Tex.
Houston, Tex.
Huntsville, Tex.
Longview, Tex.
Luling, Tex.
Orange, Tex.
San Antonio, Tex.
Sour Lake, Tex.
Tyler, Tex.
Waco, Tex.
Weatherford, Tex.
Weimar, Tex.

Vicksburg, Miss. (center).

Edwards, Miss.
Jackson, Miss.
Lake, Miss.
Monroe, La.[c]

Little Rock, Ark. (center).

Arkansas City, Ark.
Brinkley, Ark.
Devall's Bluff, Ark.
Helena, Ark.[c]
Kensett, Ark.
Madison, Ark.
Magnolia, Ark.
Malvern, Ark.
Monticello, Ark.
Newport, Ark.
Paris, Tex.
Pine Bluff, Ark.
Prescott, Ark.
Russellville, Ark.
Texarkana, Ark.

Memphis, Tenn. (center).

Batesville, Miss.
Bolivar, Tenn.
Brownsville, Tenn.
Corinth, Miss.
Covington, Tenn.
Decatur, Ala.
Dyersburg, Tenn.
Grand Junction, Tenn.
Grenada, Miss.
Hernando, Miss.
Holly Springs, Miss.
Milan, Tenn.
Oxford, Miss.
Paris, Tenn.
Scottsborough, Ala.
Tuscumbia, Ala.
Withe, Tenn.

RECAPITULATION.

Stations taking 6 observations daily, reporting three times a day by telegraph and monthly by mail	13
Stations taking 5 observations daily, reporting three times a day by telegraph and monthly by mail	92
Stations taking 5 observations daily, reporting once a day by telegraph and monthly by mail	1
Stations taking 5 observations daily and reporting monthly by mail	6
Stations taking 3 observations daily, reporting three times a day by telegraph and monthly by mail	20
Stations taking 3 observations daily and reporting monthly by mail	9
Stations at which 2 observations are taking daily	14
Stations at which 1 observation is taken daily	54
Special printing stations	3
Display stations	64
Special river stations	42
Special cotton-region stations	138
Stations of observation at which the stage of water in the river is observed daily	29
Stations of observation at which the temperature of the water in the river or harbor is observed daily	41
Stations of observation at which cotton-region observations are taken daily at 5 p. m	18
Stations of observation which display the cautionary signal	50
Stations of observation which display the cold-wave signal	10
Stations of observation at which the "Farmers' Bulletin" is printed	15
Repair stations on the United States military telegraph lines, at which no observations are taken	7
Total number of stations	463
Total number of stations at which cotton-region observations are taken	156
Total number of stations displaying cautionary signals	114
Total number of river stations	71
Total number of printing stations	18

Comparative summary showing the number of Signal-Service stations in operation on June June 30, 1883, *and June* 30, 1884, *respectively.*

	June 30, 1883.	June 30, 1884.
Stations taking six observations daily, reporting three times a day by telegraph and monthly by mail	....	13
Stations taking five observations daily, reporting three times a day by telegraph and monthly by mail	106	92
Stations taking five observations daily, making full reports once a day by telegraph and monthly by mail	1	1
Stations taking five observations daily and reporting monthly by mail	7	6
Stations taking three observations daily, reporting three times a day by telegraph and monthly by mail	15	20
Stations taking three observations daily and reporting monthly by mail	14	9
Special printing stations	8	3
Stations of observation at which the Farmers' Bulletin was printed	15	15
Stations at which two observations were taken daily	13	14
Stations at which one observation was taken daily	29	54
Display stations	7	64
Stations of observation displaying the cautionary signal	50	50
Stations of observation at which the cold-wave signal was displayed	....	12
Special river stations	30	42
Stations of observation at which the stage of water in the river was observed daily	28	29
Stations of observation at which the temperature of the water in the river or harbor was observed daily	41	41
Repair stations on the United States military telegraph lines, at which no observations were taken	27	7
Cotton-region stations	124	138
Total number of stations	376	463

APPENDIX 23.

Monthly and annual mean barometer reduced to sea-level at stations of the Signal Service, United States Army, for the year ending June 30, 1884 (deduced from observations taken at 7 a. m., 3 and 11 p. m., Washington time).

[The daily means are obtained by dividing the sum of the 7 a. m., 3 and 11 p. m. observations by three; the monthly means by dividing the sum of the daily means by the number of days in the month.]

Stations.	Elevation of barometer cistern above mean sea-level.	1883. July.	August.	September.	October.	November.	December.	1884. January.	February.	March.	April.	May.	June.	Annual mean.
	Feet.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Albany, N. Y	83	29.954	30.033	30.083	30.178	30.113	30.107	30.130	30.095	30.041	29.859	29.936	30.081	30.051
Alexander, Fort, Alaska	38	....	....	....	....	....	....	....	....	....	....	....	....	....
Alpena, Mich	609	29.921	30.017	30.060	30.130	30.019	30.046	30.069	30.057	30.051	29.990	29.918	30.070	30.029
Apache, Fort, Ariz	5,050 B	29.828	29.839	29.884	29.887	30.145	30.128	30.179	30.074	29.943	29.840	29.785	29.744	29.940
Assinaboine, Fort, Mont	2,720 B	29.919	29.947	30.110	30.052	30.086	30.203	30.267	30.242	30.100	30.054	29.979	29.884	30.070
Atlanta, Ga	1,129	30.096	30.061	30.082	30.142	30.254	30.214	30.246	30.147	30.090	29.900	30.018	30.027	30.114
Atlantic City, N. J	13	29.981	30.128	30.058	30.140	30.152	30.105	30.113	30.057	30.002	29.840	29.943	30.065	30.040
Augusta, Ga	183	30.087	[1]30.058	30.071	30.138	30.253	30.207	30.256	30.149	30.100	29.981	30.015	30.062	30.115
Baltimore, Md	45	30.011	30.059	30.088	30.188	30.202	30.154	30.174	30.108	30.060	29.909	29.979	30.091	30.085
Barnegat City, N. J	22	29.985	30.034	30.069	30.153	30.154	30.107	30.133	30.072	30.015	29.847	29.954	30.081	30.050
Behring's Island, Behring Sea.	20	29.857	29.836	29.795	29.623	29.837	29.532	29.585	29.560	29.599	29.764	29.831	29.958	29.731
Bennett, Fort, Dak	1,510 B	29.924	29.964	30.077	30.049	30.091	30.251	30.293	30.228	30.095	30.044	29.944	29.879	30.070
Benton, Fort, Mont	2,681 B	29.935	[2]30.041	30.155	30.109	30.125	30.240	30.273	30.248	30.109	[2]30.046	29.974	29.893	30.096
Bismarck, Dak	1,694	29.886	29.970	30.063	[2]30.065	[2]30.071	30.247	30.275	30.218	30.071	30.062	29.955	29.880	30.064
Block Island, R. I	27	29.972	30.028	30.082	30.162	30.126	30.079	30.107	30.070	29.993	29.806	29.944	30.091	30.038
Boise City, Idaho	2,750 B	[3]29.907	29.911	29.953	30.054	30.203	30.315	30.302	30.146	29.982	29.914	29.967	29.883	30.045
Boston, Mass	125	29.942	30.012	30.069	30.173	30.097	30.057	30.095	30.060	29.988	29.807	29.937	30.080	30.026
Brownsville, Tex	59	30.040	30.004	30.002	29.971	30.078	30.118	30.242	30.047	29.960	29.909	29.922	29.935	30.019
Buffalo, N. Y	690	29.958	30.031	30.058	30.133	30.058	30.069	30.190	30.057	30.047	29.924	29.915	30.060	30.035
Buford, Fort, Dak	1,930 B	29.946	29.987	30.099	30.047	30.066	[4]30.258	30.271	30.235	30.086	30.067	[5]29.927	29.865	30.071
Cairo, Ill	377	30.079	30.086	30.087	30.108	30.224	30.191	30.295	30.110	30.069	29.974	29.999	30.004	30.102
Canby, Fort, Wash	179	....	(6)	[7-2]30.017	30.038	30.101	30.083	30.090	30.023	29.931	29.944	30.049	29.986	....
Cape Henry, Va	16	30.038	30.041	30.056	30.139	30.200	30.151	30.164	30.101	30.049	29.906	29.985	30.067	30.075
Cape May, N. J	27	[7]29.993	[2]30.029	[3]30.063	30.145	30.159	30.115	30.140	30.082	30.020	29.864	29.956	30.064	30.052
Cape Mendocino, Cal	637	29.986	30.019	29.967	30.026	30.159	30.124	30.079	29.986	29.951	29.969	29.992	29.985	30.020
Cedar Keys, Fla	22	30.114	30.039	30.021	30.063	30.163	30.183	30.239	30.143	30.108	30.007	30.028	30.005	30.092
Charleston, S. C	52	30.061	30.023	30.019	30.094	30.202	30.167	30.202	30.116	[1]30.071	29.938	[1]29.987	30.035	30.076
Charlotte, N. C	808	30.064	30.042	30.057	30.144	30.236	30.188	30.198	30.124	30.063	29.942	29.984	30.041	30.090

Chattanooga, Tenn	783	30.069	30.064	30.070	30.126	30.250	30.210	30.261	30.185	30.072	29.972	29.990	30.018	30.104
Cheyenne, Wyo	6,105	29.847	29.894	30.042	30.008	30.204	30.268	30.233	30.109	30.024	29.988	29.919	29.844	30.028
Chicago, Ill	661	29.972	30.053	30.052	30.096	30.090	30.109	30.160	30.044	30.034	29.959	29.930	[7]30.022	30.043
Chincoteague, Va	8	30.018	30.032	30.055	30.137	30.180	30.127	30.149	30.086	30.027	29.876	29.968	30.062	30.059
Cincinnati, Ohio	620	30.042	30.068	30.062	30.120	30.204	30.169	[1]30.226	30.676	30.059	29.950	29.975	30.032	30.062
Cleveland, Ohio	690	29.988	30.050	30.054	30.111	30.125	30.114	30.136	30.059	30.053	29.950	29.941	30.052	30.058
Columbus, Ohio	805	30.018	30.053	30.053	30.118	30.172	30.144	30.184	30.057	30.041	29.983	29.948	30.027	30.062
Concho, Fort, Tex	1,900 B	30.022	30.005	30.078	30.057	30.228	30.256	30.327	30.156	30.030	29.978	29.967	29.956	30.088
Custer, Fort, Mont	3,040 B	[8]29.970	29.951	30.073	30.059	30.121	30.262	30.276	30.176	30.067	29.970	29.912	29.827	30.055
Davenport, Iowa	615	29.960	30.038	30.057	30.087	30.095	30.115	[1]30.221	30.055	30.030	29.946	29.926	29.987	30.043
Davis, Fort, Tex	4,928 B	29.883	29.927	29.966	30.033	30.151	30.194	30.239	30.111	29.956	29.908	29.877	29.811	30.005
Dayton, Wash. T	1,667 B	30.000	29.997	30.054	30.051	30.092	30.224	30.244	30.115	29.991	29.941	29.992	29.933	30.058
Deadwood, Dak	4,600 B	29.867	29.910	30.038	[7]30.021	30.142	30.326	30.284	30.151	30.069	30.007	29.915	29.840	30.048
Delaware Breakwater, Del	20	30.006	30.045	30.068	30.151	30.177	30.131	30.151	30.091	30.035	29.881	29.969	30.072	30.065
Denver, Colo	5,294	29.833	29.878	29.978	29.949	30.211	30.236	30.248	30.116	30.002	29.923	29.898	29.829	30.008
Des Moines, Iowa	949	29.975	30.052	30.070	30.101	30.107	30.160	30.249	30.107	30.045	29.967	29.952	29.989	30.064
Detroit, Mich	661	29.972	30.053	[7]30.058	30.113	30.094	30.103	30.139	30.057	30.053	29.960	29.928	30.057	30.049
Dodge City, Kans	2,517	29.920	29.966	30.038	30.037	30.176	30.261	30.277	30.135	30.030	29.967	29.937	29.922	30.055
Dubuque, Iowa	665	29.959	30.048	30.061	30.110	30.084	30.121	30.208	30.071	30.045	29.963	29.926	30.002	30.050
Duluth, Minn	687	29.903	29.999	30.054	30.101	29.999	30.129	30.178	30.120	30.049	30.047	29.962	30.029	30.048
Eastport, Me.	61	29.901	29.959	30.024	30.138	30.039	29.994	30.047	30.049	29.935	29.773	29.900	30.016	29.981
Elliott, Fort, Tex	2,650 B	29.904	29.941	30.026	30.033	30.225	30.267	30.292	30.119	29.983	29.945	29.915	[4]29.914	30.047
El Paso, Tex	3,764 B	29.891	29.930	29.988	29.995	30.194	30.222	30.260	[2]30.133	29.997	29.923	29.844	29.810	30.016
Erie, Pa	681	29.981	30.047	30.067	30.122	30.111	30.093	30.124	30.057	30.053	29.942	29.929	30.068	30.049
Escanaba, Mich	613	29.905	30.011	30.064	30.118	29.995	30.061	30.110	30.079	30.040	29.997	29.904	30.029	30.026
Fort Smith, Ark	451	30.027	30.041	30.052	30.036	30.155	30.169	30.284	30.085	30.005	29.945	29.954	29.951	30.059
Galveston, Tex	40	30.081	30.027	30.027	30.011	30.116	30.129	30.250	30.090	30.015	29.968	29.980	29.975	30.056
Grand Haven, Mich	620	29.955	30.043	30.052	30.088	30.040	30.063	30.115	30.033	30.029	29.969	29.921	[7]30.035	30.029
Grant, Fort, Ariz	4,856 B	(9)	(10)	29.867	29.896	30.087	30.142	30.168	30.054	29.969	29.882	29.796	29.748	....
Hatteras, N. C	12	30.053	30.018	30.033	30.107	30.197	30.151	30.166	30.106	30.046	29.897	29.988	30.058	30.068
Helena, Mont	4,044 B	29.912	29.946	30.055	30.053	30.104	[1]30.188	30.295	30.136	30.082	30.001	29.951	29.873	30.045
Huron, Dak	1,305	29.898	29.973	30.063	30.075	30.073	30.215	30.296	30.193	30.069	30.041	29.928	29.915	30.062
Indianapolis, Ind	753	30.002	30.040	30.033	30.080	30.151	30.126	30.178	30.050	30.030	29.938	29.946	29.999	30.048
Indianola, Tex	26	30.075	30.035	30.040	30.015	30.123	30.145	30.270	30.083	29.999	29.951	29.962	29.964	30.055
Jacksonville, Fla	43	30.101	30.043	30.030	30.072	30.192	30.187	30.236	30.137	30.100	29.976	30.004	30.021	30.092
Keokuk, Iowa	618	29.974	30.042	30.049	30.095	30.120	30.137	30.235	30.069	30.031	29.944	29.944	29.978	30.052
Key West, Fla	20	30.113	30.038	29.991	30.002	30.068	30.142	30.178	30.128	30.108	[7]30.031	30.021	30.012	30.069
Kittyhawk, N. C	9	30.067	30.051	30.065	30.135	30.218	30.175	30.191	[4]30.122	30.047	29.909	30.000	30.073	30.088
Knoxville, Tenn	980	30.081	30.066	30.068	30.125	30.256	30.216	30.249	30.131	30.068	29.966	29.995	30.023	30.104
La Crosse, Wis	725	29.924	30.022	30.063	30.101	30.043	30.114	30.194	30.077	30.037	[7]29.964	29.903	29.994	30.086
Leavenworth, Kans	842	29.984	30.053	30.059	30.071	30.144	30.177	30.290	30.117	30.028	29.964	29.961	29.976	30.069
Lewiston, Idaho	780 B	29.955	[1]29.957	29.964	30.036	30.108	30.228	30.261	30.126	29.951	29.948	29.971	29.898	30.033
Little Rock, Ark	299	30.048	30.055	30.058	[1]30.060	30.190	30.178	30.287	30.095	30.043	29.966	29.982	29.974	30.077
Los Angeles, Cal	371	29.984	29.985	29.932	30.003	30.072	30.106	30.145	30.053	30.034	30.034	30.011	29.959	30.026
Louisville, Ky	530	30.023	30.031	30.022	30.086	30.177	30.144	30.177	30.048	30.027	29.928	29.949	29.992	30.050
Lynchburg, Va	652	30.026	30.045	30.061	30.143	30.211	30.161	30.158	30.092	30.047	29.927	29.964	[7]30.052	30.074
Mackinaw City, Mich	605	29.924	30.021	30.065	30.128	29.992	30.083	30.073	30.066	30.061	30.002	29.919	30.066	30.029

[1] For 30 days only.
[2] For 28 days only.
[3] For 16 days only.
[4] For 27 days only.
[5] For 26 days only.
[6] Observations began September 1, 1883.
[7] For 29 days only.
[8] Observations recommenced July 21, 1883.
[9] No record.
[10] Record incomplete.

Monthly and annual mean barometer, reduced to sea-level, at stations of the Signal Service, United States Army, for the year ending July 30, 1884, &c.—Cont'd.

Stations.	Elevation of barometer cistern above mean sea-level.	1883.						1884.						Annual mean.
		July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Feet.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Macon, Fort, N. C	11	30.057	30.026	30.034	30.109	30.209	30.172	30.192	30.122	30.062	29.916	30.000	30.071	30.081
Maginnis, Fort, Mont	4,340 B	29.960	29.963	30.090	30.052	30.053	30.140	30.319	30.186	30.065	30.007	29.976	29.880	30.058
Marquette, Mich	673	29.911	30.014	30.065	30.118	29.986	30.053	30.103	30.096	30.057	30.041	29.988	30.057	30.037
Memphis, Tenn	321	30.050	30.041	30.052	30.058	30.183	[1]30.166	30.268	30.071	30.024	29.950	[1]29.983	29.987	30.069
Milwaukee, Wis	697	29.951	30.045	30.064	30.108	30.059	30.094	30.144	30.044	30.036	29.970	29.914	30.039	30.039
Mobile, Ala	35	30.094	30.030	30.029	30.065	30.183	30.169	30.253	30.116	30.059	29.987	30.005	29.989	30.082
Montgomery, Ala	219	30.075	30.037	30.042	30.084	30.212	30.183	30.265	30.126	30.064	29.975	29.994	29.991	30.087
Moorhead, Minn	923	[1]29.904	29.976	30.049	30.069	30.036	[1]30.186	30.251	30.193	30.087	30.035	29.940	29.925	30.054
Mount Washington, N. H	6,279	29.922	29.968	30.009	[1]30.153	30.162	30.059	30.000	30.109	29.963	29.901	29.834	30.092	30.014
Nashville, Tenn	549	30.059	30.042	30.045	30.082	30.203	30.172	30.253	30.089	30.039	29.940	29.970	29.980	30.078
New Haven, Conn	107	29.956	30.022	30.068	30.167	30.126	30.088	30.110	30.074	30.010	29.836	29.952	30.087	30.041
New London, Conn	47	29.987	30.044	30.097	30.186	30.144	30.106	30.130	30.086	30.013	29.826	29.960	30.108	30.057
New Orleans, La	52	30.085	30.017	30.016	30.017	30.160	30.153	30.246	30.100	30.037	29.975	29.985	29.961	30.064
New York City	164	29.992	30.048	30.089	30.182	30.155	30.122	30.144	30.101	30.026	29.856	29.961	30.091	30.064
Norfolk, Va	30	30.032	30.028	30.040	30.130	30.190	30.145	30.164	30.085	30.025	29.890	29.975	30.070	30.065
North Platte, Nebr	2,841	29.891	29.958	[2]30.050	30.046	30.147	[2]30.271	30.281	30.143	30.021	29.966	29.926	29.875	30.048
Olympia, Wash. T	86	30.087	30.099	[3]30.017	30.010	30.092	30.087	30.125	30.052	29.936	29.938	30.029	29.956	30.036
Omaha, Nebr	1,113	29.959	30.049	30.094	30.110	30.128	30.203	30.290	30.161	30.055	29.989	29.961	29.972	30.081
Oswego, N. Y	334	29.944	30.022	30.061	30.138	30.066	30.071	30.087	30.054	30.028	29.912	29.924	30.070	30.031
Palestine, Tex	533	30.086	30.060	30.074	[4]30.048	30.161	30.168	30.283	30.104	30.003	29.975	29.984	29.980	30.079
Pensacola, Fla	30	30.096	30.031	30.028	30.064	30.180	30.168	30.250	30.120	30.066	29.985	30.005	29.987	30.082
Philadelphia, Pa	117	30.004	30.055	30.092	30.177	30.175	30.139	30.156	30.101	30.037	29.883	29.961	30.086	30.072
Pike's Peak, Colo	14,134	29.901	29.948	30.042	30.012	30.387	30.292	30.289	30.190	30.107	29.900	29.878	29.832	30.065
Pittsburg, Pa	766	30.014	30.056	30.063	30.131	30.173	30.130	30.141	30.053	30.037	29.915	29.932	30.031	30.056
Port Huron, Mich	633	29.918	30.000	30.029	30.088	30.046	30.043	30.074	30.013	30.011	29.924	29.893	30.036	30.006
Portland, Me	45	29.900	29.981	30.042	30.147	30.048	30.028	30.057	30.032	29.969	29.794	29.914	30.049	29.998
Portland, Oreg	67	30.046	30.075	30.001	30.036	30.111	[1]30.115	30.133	30.037	29.924	29.931	29.999	29.947	30.030
Prescott, Ariz	5,389 B	29.841	29.859	29.939	29.914	30.157	30.194	30.214	30.091	30.021	29.917	29.851	29.795	29.974
Provincetown, Mass	26	29.950	30.009	30.069	30.161	30.099	30.044	30.079	30.054	29.973	(5)	....	....	....
Red Bluff, Cal	332	29.865	29.919	29.906	30.006	30.152	30.171	30.173	30.055	29.965	29.963	29.942	29.924	30.003
Rio Grande City, Tex	230 B	(6)	(6)	(6)	[7]30.012	30.157	30.193	30.315	30.094	29.999	[3]29.957	29.965	29.967	....
Rochester, N. Y	621	(6)	(6)	(6)	[8]30.144	30.094	30.084	30.090	30.059	30.040	29.934	29.928	30.077	....
Roseburg, Oreg	511	30.029	30.067	30.008	30.079	30.195	30.169	30.147	30.038	29.945	29.967	30.011	29.970	30.052
Sacramento, Cal	64	29.890	[1]29.924	29.904	29.987	[2]30.123	30.165	30.150	[3]30.041	[1]29.965	29.982	29.956	[2]29.946	30.003
Saint Louis, Mo	571	30.015	30.052	30.024	30.063	30.135	30.125	30.228	30.040	30.011	29.918	29.924	29.960	30.041
Saint Michaels', Fort, Alaska	30	29.837	29.835	29.577	29.604	29.838	29.794	29.737	30.166	29.750	29.992	29.779	28.887	29.733

Saint Paul, Minn.	801	29.911	29.997	30.054	30.033	30.019	30.126	30.195	30.087	30.087	29.978	29.909	29.965	30.081
Saint Vincent, Minn	804	29.895	29.980	30.057	30.080	30.013	30.204	30.258	30.219	30.080	30.095	29.969	29.920	30.065
Salt Lake City, Utah	4,348	29.837	29.877	29.939	30.006	30.284	30.282	30.346	30.158	30.036	29.896	29.921	29.806	30.031
San Diego, Cal	67	29.958	29.958	29.905	29.979	30.089	30.070	30.114	30.086	30.019	30.012	29.989	29.962	30.003
Sandusky, Ohio	639	([10])	30.053	30.070	30.127	30.134	30.115	30.146	30.053	30.056	29.951	29.940	30.052	....
Sandy Hook, N. J	28	29.965	30.048	30.088	30.176	30.159	30.120	30.145	30.097	30.032	29.859	29.961	30.095	30.064
Sanford, Fla	36	30.085	30.012	29.986	30.023	30.119	30.148	30.195	30.108	30.081	29.968	29.983	29.965	30.058
San Francisco, Cal	60	29.966	30.005	29.959	30.015	30.140	30.158	30.147	30.083	29.968	30.001	29.997	[2] 29.994	30.084
Savannah, Ga	87	30.082	30.041	30.041	30.096	30.204	30.181	[1] 30.231	30.126	30.082	29.955	29.998	[8] 30.034	30.089
Shaw, Fort, Mont	3,550 B	29.926	29.949	30.081	30.047	30.185	30.209	30.274	30.214	30.077	30.084	29.984	29.914	30.070
Shreveport, La	227	30.062	30.038	30.093	30.055	30.199	30.191	30.318	30.100	30.087	29.981	29.991	30.000	30.088
Sitka, Alaska	63	30.060	30.003	29.832	29.910	29.841	29.668	29.855	30.110	29.758	29.950	29.860	29.849	29.891
Smithville, N. C	34	30.058	30.029	30.019	30.101	30.208	30.170	30.195	30.118	30.066	29.928	29.998	30.063	30.079
Spokane Falls, Wash. T	1,906	29.986	29.976	30.046	30.029	30.041	30.186	[11] 30.281	30.097	29.976	29.926	29.957	29.901	30.084
Springfield, Ill	644	30.010	30.061	30.054	30.097	30.151	30.144	30.239	30.077	30.038	29.967	29.961	30.005	30.067
Stockton, Fort, Tex	3,010 B	29.954	29.983	30.025	30.017	30.197	30.228	30.274	30.118	30.003	29.950	29.946	29.883	30.048
Tatoosh Island, Wash. T	86	....	....	....	([12])	([6])	([6])	([6])	([6])	29.917	29.918	30.019	29.968	....
Thomas, Camp, Ariz	2,710 B	([6])	([6])	([6])	[13] 29.926	30.143	30.159	30.204	30.087	29.975	29.906	29.861	29.791	....
Toledo, Ohio	651	29.954	30.027	30.050	30.096	30.099	30.098	30.138	30.049	30.085	29.926	29.909	30.027	30.084
Unalashka, Alaska	13	29.997	29.996	29.640	29.845	29.978	29.657	29.474	29.775	29.609	29.776	29.770	29.779	29.774
Vicksburg, Miss	244	30.077	30.034	30.052	20.067	30.203	30.182	30.284	30.106	30.038	29.989	30.010	29.999	30.087
Washington City	106	30.027	30.070	30.091	30.184	30.208	30.159	30.181	30.110	30.064	29.922	29.978	30.061	30.090
West Las Animas, Colo	3,899	29.804	29.859	29.951	29.928	30.187	30.199	30.214	30.068	29.940	29.888	29.855	29.807	29.971
Wilmington, N. C	52	30.059	30.029	30.024	30.117	30.220	30.177	30.202	30.121	30.061	29.928	29.984	30.055	30.081
Yankton, Dak	1,228	29.958	30.016	30.058	30.074	30.098	30.195	30.278	30.181	30.058	30.003	29.987	29.951	30.067
Yuma, Ariz	141	29.802	29.828	29.798	29.909	[3] 29.999	([6])	30.128	30.087	29.966	[2] 29.907	29.858	29.792	....

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[1] For thirty days only.
[2] For twenty-nine days only.
[3] For twenty-eight days only.
[4] For twenty-five days only.
[5] Observations discontinued April 1, 1884.
[6] No record.
[7] Observations recommenced October 1, 1883.
[8] For twenty-seven days only.
[9] Observations recommenced October 10, 1883.
[10] Observations recommenced July 20, 1883.
[11] For 26 days only.
[12] Observations began October 1, 1883.
[13] For 19 days only.

APPENDIX 24.

Monthly and annual mean barometer (corrected for temperature and instrumental error only) at stations of the Signal Service, United States Army, for the year ending June 30, 1884, deduced from observations taken at 7 a. m., 3 and 11 p. m., Washington time.

[The daily means are obtained by dividing the sum of the 7 a. m., 3 and 11 p. m. observations by three; the monthly means by dividing the sum of the daily means by the number of days in the month.]

Stations.	Elevation of barometer cistern above mean sea-level.	1883.						1884.						Annual mean.
		July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Feet.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Albany, N. Y	83	29.874	29.953	30.003	30.098	30.033	30.017	30.040	30.005	29.951	29.779	29.856	30.001	29.968
Alexander, Fort, Alaska	88	....	....	....	....	....	....	....	....	....	....	....	....	....
Alpena, Mich	609	29.281	29.377	29.410	29.460	29.819	29.336	29.359	29.347	29.351	29.300	29.258	29.420	29.352
Apache, Fort, Ariz	5,050 B	25.088	25.119	25.084	24.987	25.045	25.048	25.059	24.974	24.923	24.920	24.965	24.994	25.017
Assinaboine, Fort, Mont	2,720 B	27.179	27.187	27.256	27.122	27.096	27.168	27.217	27.192	27.080	27.144	27.129	27.084	27.154
Atlanta, Ga	1,129	28.946	28.911	28.912	28.952	29.034	28.984	29.016	28.927	28.880	28.800	28.848	28.877	28.924
Atlantic City, N. J	13	29.971	30.018	30.048	30.130	30.142	30.095	30.103	30.047	29.992	29.839	29.933	30.055	30.030
Augusta, Ga	183	29.897	[1]29.868	29.881	29.948	30.053	30.007	30.056	29.949	29.900	29.791	29.825	29.872	29.921
Baltimore, Md	45	29.961	30.009	30.038	30.138	30.152	30.104	30.124	30.058	30.010	29.859	29.929	30.041	30.035
Barnegat City, N. J	22	29.965	30.014	30.049	30.133	30.134	30.087	30.118	30.052	29.995	29.827	29.984	30.061	30.030
Behring's Isl'd, Behring Sea	20	29.837	29.816	29.775	29.603	29.817	29.512	29.565	29.540	29.579	29.744	29.811	29.938	29.711
Bennett, Fort, Dak	1,510 B	28.384	28.424	28.487	28.429	28.401	28.491	28.553	28.498	28.395	28.404	28.384	28.339	28.432
Benton, Fort, Mont	2,681 B	27.235	[2]27.261	27.325	27.209	27.175	27.250	27.308	27.258	27.139	[3]27.196	27.194	27.133	27.223
Bismarck, Dak	1,694	28.156	28.210	28.263	[3]28.185	[3]28.141	28.227	28.275	28.238	28.151	28.182	28.165	28.120	28.198
Block Island, R. I	27	29.942	29.998	30.052	30.132	30.096	30.049	30.077	30.040	29.968	29.776	29.914	30.061	30.008
Boisé City, Idaho	2,750 B	[3]27.187	27.161	27.183	27.194	27.263	27.335	27.372	27.186	27.062	27.074	27.127	27.108	27.187
Boston, Mass	125	29.812	29.882	29.989	30.033	29.957	29.917	29.955	29.920	29.848	29.667	29.797	29.950	29.890
Brownsville, Tex	59	29.980	29.944	29.942	29.911	30.018	30.058	30.182	29.987	29.900	29.849	29.862	29.875	29.959
Buffalo, N. Y	690	29.238	29.311	29.328	29.383	29.288	29.279	29.316	29.267	29.267	29.154	29.175	29.330	29.278
Buford, Fort, Dak	1,930 B	27.946	27.987	28.059	27.947	27.906	[4]27.988	28.041	28.025	27.926	27.967	[5]27.927	27.875	27.966
Cairo, Ill	377	29.689	29.696	29.687	29.708	29.804	29.771	29.875	29.690	29.649	29.564	29.590	29.614	29.696
Canby, Fort, Wash	179	....	(6)	[7]29.817	29.838	29.901	29.883	29.890	29.823	29.731	29.744	29.849	29.796	....
Cape Henry, Va	16	30.018	30.021	[2]30.036	30.119	30.180	30.181	30.144	30.081	30.029	29.886	29.965	30.047	30.055
Cape May, N. J	27	[7]29.963	[2]29.999	[3]30.033	30.115	30.129	30.085	30.110	30.052	29.990	29.834	29.926	30.084	30.022
Cape Mendocino, Cal	637	29.306	29.339	29.287	29.336	29.459	29.424	29.879	29.286	29.261	29.279	29.312	29.305	29.331
Cedar Keys, Fla	22	30.094	30.019	30.001	30.043	30.143	30.163	30.219	30.123	30.088	29.987	30.008	29.985	30.072
Charleston, S. C	52	30.011	29.973	29.969	30.084	30.142	30.107	30.142	30.056	[1]30.011	29.878	[1]29.937	29 985	30.020
Charlotte, N. C	808	29.234	29.212	29.217	29.284	29.356	29.298	29.308	29.234	29.185	29.083	29.144	29.211	29.230
Chattanooga, Tenn	783	29.289	29.264	29.260	29.296	29.400	29.350	29.401	29.275	29.222	29.142	29.180	29.203	29.274
Cheyenne, Wyo	6,105	24.187	24.174	24.162	23.968	23.974	23.968	23.963	23.839	23.824	23.918	24.029	24.084	24.003

Chicago, Ill	661	29.282	29.363	29.362	29.386	29.350	29.349	29.410	29.294	29.294	29.229	29.230	[7]29.362	29.323
Chincoteague, Va	8	30.003	30.022	30.045	30.127	30.170	30.117	30.139	30.076	30.017	29.866	29.958	30.052	30.049
Cincinnati, Ohio	620	29.402	29.428	29.412	29.460	29.514	29.469	[1]29.536	29.386	29.309	29.280	29.325	29.382	29.414
Cleveland, Ohio	690	29.268	29.330	29.334	29.371	29.355	29.324	29.356	29.269	29.273	29.190	29.211	29.322	29.300
Columbus, Ohio	805	29.188	29.223	29.213	29.253	29.282	29.234	29.284	29.157	29.151	29.063	29.108	29.187	29.195
Concho, Fort, Tex	1,900 B	28.142	28.145	28.173	28.010	28.218	28.236	28.307	28.186	28.060	28.038	28.067	28.086	28.143
Custer, Fort, Mont	3,040 B	([8])	26.891	26.953	26.819	26.801	26.862	26.896	26.816	26.737	26.790	26.812	26.767	....
Davenport, Iowa	615	29.330	29.408	29.407	29.427	29.405	29.405	[1]29.511	29.355	29.340	29.276	29.286	29.347	29.375
Davis, Fort, Tex	4,928 B	25.253	25.287	25.276	25.193	25.261	25.264	25.269	25.161	25.086	25.128	25.167	25.211	25.213
Dayton, Wash	1,667 B	28.280	28.277	28.304	28.261	28.302	28.384	28.434	28.295	28.171	28.181	28.232	28.183	28.275
Deadwood, Dak	4,600 B	25.437	25.470	25.478	[7]25.341	25.302	25.336	25.334	25.231	25.229	25.317	25.395	25.400	25.356
Delaware Breakwater, Del	20	29.986	30.025	30.048	30.131	30.157	30.111	30.131	30.071	30.015	29.861	29.949	30.052	30.045
Denver, Colo	5,294	24.823	24.858	24.868	24.689	24.711	24.716	24.728	24.596	24.562	24.653	24.738	24.789	24.728
Des Moines, Iowa	849	29.095	29.172	29.180	29.181	29.157	29.180	29.279	29.137	29.085	29.037	29.062	29.109	29.140
Detroit, Mich	661	29.282	29.363	[7]29.368	29.403	29.354	29.343	29.379	29.307	29.303	29.230	29.228	29.367	29.327
Dodge City, Kans	2,517	27.420	27.486	27.483	27.407	27.436	27.461	27.527	27.395	27.300	27.327	27.387	27.412	27.420
Dubuque, Iowa	665	29.269	29.358	29.361	29.390	29.334	29.351	29.438	29.311	29.295	29.233	29.226	29.312	29.323
Duluth, Minn	687	29.183	29.279	29.314	29.341	29.209	29.309	29.368	29.310	29.259	29.277	29.212	29.290	29.280
Eastport, Me	61	29.841	29.889	29.954	30.068	29.969	29.924	29.977	29.979	29.865	29.703	29.830	29.946	29.912
Elliott, Fort, Tex	2,650 B	27.264	27.301	27.336	27.243	27.295	27.307	27.362	27.219	27.153	27.165	27.215	[4]27.244	27.259
El Paso, Tex	3,764 B	26.291	26.330	26.338	26.255	26.344	26.362	26.350	[2]26.253	26.197	26.183	26.204	26.220	26.280
Erie, Pa	681	29.271	29.337	29.357	29.392	29.331	29.323	29.354	29.287	29.283	29.192	29.209	29.343	29.308
Escanaba, Mich	613	29.265	29.371	29.404	29.443	29.295	29.341	29.390	29.359	29.330	29.307	29.244	29.379	29.344
Fort Smith, Ark	451	29.567	29.581	29.582	29.556	29.665	29.669	29.784	29.585	29.515	29.465	29.484	29.491	29.579
Galveston, Tex	40	30.041	29.087	29.987	29.971	30.076	30.089	30.210	30.050	29.975	29.928	29.940	29.935	30.016
Grand Haven, Mich	620	29.305	29.393	29.392	29.418	29.340	29.353	29.405	29.323	29.329	29.279	29.261	[7]29.385	29.349
Grant, Fort, Ariz	4,856 B	([9])	([10])	25.267	25.196	25.247	25.262	25.268	25.194	25.159	25.152	25.180	25.208	....
Hatteras, N. C	12	30.043	30.008	30.023	30.097	30.187	30.141	30.156	30.096	30.036	29.887	29.978	30.048	30.058
Helena, Mont	4,044 B	25.902	25.906	25.935	25.803	25.774	[1]25.853	25.915	25.786	25.712	25.791	25.831	25.803	25.834
Huron, Dak	1,305	28.578	28.633	28.683	28.645	28.593	28.675	28.756	28.673	28.589	28.591	28.578	28.575	28.631
Indianapolis, Ind	753	29.232	29.270	29.253	29.280	29.311	29.276	29.338	29.200	29.190	29.118	29.156	29.219	29.237
Indianola, Tex	26	30.045	30.005	30.010	29.985	30.093	30.115	30.240	30.053	29.969	29.921	29.932	29.934	30.025
Jacksonville, Fla	43	30.061	30.003	29.990	30.032	30.142	30.137	30.186	30.108	30.050	29.936	29.964	29.981	30.047
Keokuk, Iowa	618	29.344	29.412	29.399	29.425	29.430	29.427	29.535	29.369	29.341	29.274	29.294	29.338	29.382
Key West, Fla	20	30.093	30.018	29.971	29.982	30.048	30.122	30.158	30.108	30.088	[7]30.011	30.001	29.992	30.049
Kittyhawk, N. C	29	30.047	30.031	30.045	30.115	30.198	30.155	30.171	[4]30.102	30.027	29.889	29.980	30.053	30.068
Knoxville, Tenn	980	29.031	29.056	29.048	29.085	29.186	29.186	29.169	29.051	29.008	28.926	28.975	29.013	29.061
La Crosse, Wis	725	29.174	29.272	29.293	29.311	29.223	29.264	29.354	29.237	29.217	[7]29.164	29.143	29.234	29.240
Leavenworth, Kans	842	29.124	29.193	29.179	29.171	29.204	[1]29.217	29.330	29.167	29.713	29.054	29.081	29.106	29.160
Lewiston, Idaho	780 B	29.145	[1]29.147	29.134	29.186	29.238	29.348	29.391	29.256	29.001	29.098	29.181	29.078	29.186
Little Rock, Ark	299	29.738	29.745	29.743	[1]29.740	29.860	29.843	29.957	29.765	29.713	29.646	29.672	29.664	29.757
Los Angeles, Cal	371	29.594	29.595	29.542	29.603	29.672	29.706	29.745	29.653	29.634	29.634	29.699	29.569	29.630
Louisville, Ky	530	29.473	29.481	29.472	29.516	29.587	29.544	29.587	29.458	29.437	29.358	29.372	29.442	29.480
Lynchburg, Va	652	29.356	29.375	29.381	29.453	29.491	29.431	29.438	29.372	29.327	29.217	29.284	[7]29.382	29.376
Mackinaw City, Mich	605	29.284	29.381	29.415	29.458	29.302	29.333	29.373	29.366	29.361	29.322	29.269	29.426	29.358
Macon, Fort, N. C	11	30.047	30.016	30.024	30.099	30.199	30.162	30.182	30.112	30.052	29.906	29.990	30.061	30.071
Maginnis, Fort, Mont	4,340 B	25.650	25.658	25.690	25.512	25.453	25.510	25.549	25.436	25.465	25.507	25.566	25.550	25.545

[1] Thirty days only.
[2] Twenty-eight days only.
[3] Sixteen days only.
[4] Twenty-seven days only.
[5] Twenty-six days only.
[6] Observations began September 1, 1883.
[7] Twenty-nine days only.
[8] Observations recommenced July 21, 1883.
[9] No record.
[10] Record incomplete.

Monthly and annual mean barometer, corrected for temperature and instrumental error only, at stations of the Signal Service, &c.—Continued.

Stations.	Elevation of barometer cistern above mean sea-level.	1883. July.	1883. August.	1883. September.	1883. October.	1883. November.	1883. December.	1884. January.	1884. February.	1884. March.	1884. April.	1884. May.	1884. June.	Annual mean.
	Feet.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Marquette, Mich	678	29.201	29.304	29.345	29.878	29.216	29.273	29.323	29.316	29.287	29.291	29.218	29.837	29.291
Memphis, Tenn	321	29.720	29.711	29.712	29.718	29.833	[1]29.806	29.908	29.721	29.674	29.610	[1]29.658	29.657	29.727
Milwaukee, Wis	697	29.221	29.315	29.324	29.348	29.269	29.284	29.344	29.244	29.246	29.200	29.174	29.299	29.272
Mobile, Ala	35	30.054	29.990	29.939	30.025	30.143	30.129	30.218	30.076	30.019	29.947	29.965	29.949	30.042
Montgomery, Ala	219	29.855	29.807	29.812	29.854	29.972	29.943	30.025	29.886	29.824	29.745	29.764	29.761	29.854
Moorhead, Minn	923	[1]28.944	29.006	29.059	29.049	28.976	[1]29.076	29.141	29.093	29.007	29.005	28.960	28.955	29.023
Mount Washington, N. H	6,279	23.852	23.888	23.859	[1]23.813	23.602	23.429	23.870	23.489	23.443	23.491	23.654	23.972	23.655
Nashville, Tenn	549	29.499	29.482	29.475	29.502	29.603	29.562	29.643	29.479	29.439	29.860	29.400	29.420	29.489
New Haven, Conn	107	29.846	29.912	29.958	30.047	30.006	29.968	29.990	29.954	29.890	29.716	29.832	29.977	29.925
New London, Conn	47	29.937	29.994	30.047	30.136	30.094	30.056	30.080	30.036	29.963	29.776	29.910	30.058	30.007
New Orleans, La	52	30.035	29.967	29.966	29.987	30.100	30.093	30.186	30.040	29.977	29.915	29.935	29.911	30.009
New York City	164	29.822	29.878	29.919	30.002	29.975	29.932	29.954	29.911	29.846	29.676	29.781	29.921	29.885
Norfolk, Va	30	30.002	29.998	30.010	30.100	30.160	30.115	30.134	30.055	29.995	29.860	29.945	30.049	30.035
North Platte, Nebr	2,841	27.091	27.158	[2]27.170	27.086	27.067	[2]27.111	27.161	27.043	26.961	27.006	27.056	27.075	27.082
Olympia, Wash T	36	30.017	30.059	[3]29.977	29.970	30.052	30.047	30.085	30.012	29.896	29.898	29.989	29.916	29.996
Omaha, Nebr	1,118	28.829	28.909	28.924	28.910	28.888	28.913	29.020	28.891	28.805	28.779	28.801	28.832	28.875
Oswego, N. Y	334	29.624	29.702	29.741	29.808	29.726	29.721	29.737	29.704	29.688	29.572	29.594	29.750	29.697
Palestine, Tex	533	29.546	29.520	29.524	[4]29.488	29.591	29.588	29.703	29.524	29.453	29.415	29.434	29.440	29.519
Pensacola, Fla	30	30.066	30.001	29.998	30.034	30.150	30.188	30.220	30.090	30.036	29.955	29.975	29.957	30.052
Philadelphia, Pa	117	29.884	29.935	29.972	30.047	30.045	30.009	30.026	29.971	29.907	29.753	29.841	29.966	29.946
Pike's Peak, Colo	14,184	18.121	18.158	18.062	17.732	17.727	17.632	17.589	17.470	17.517	17.620	17.818	18.012	17.788
Pittsburg, Pa	766	29.224	29.266	29.273	29.311	29.323	29.270	29.291	29.193	29.187	29.085	29.182	29.241	29.233
Port Huron, Mich	633	29.258	29.340	29.359	29.398	29.326	29.313	29.344	29.283	29.291	29.224	29.213	29.366	29.310
Portland, Me	45	29.850	29.931	29.992	30.097	29.998	29.978	30.007	30.002	29.919	29.744	29.864	29.999	29.948
Portland, Oreg	67	29.976	30.005	29.931	29.966	30.041	[1]30.045	30.063	29.967	29.854	29.861	29.929	29.877	29.960
Prescott, Ariz	5,389 B	24.811	24.839	24.799	24.714	24.767	24.774	24.784	24.681	24.631	24.647	24.711	24.735	24.737
Provincetown, Mass	26	29.920	29.979	30.039	30.131	30.069	30.014	30.049	30.024	29.948	(5)	....	....	....
Red Bluff, Cal	332	29.525	29.569	29.556	29.646	29.782	29.801	29.803	29.685	29.595	29.603	29.592	29.574	29.644
Rio Grande City, Tex	230 B	(6)	(6)	(6)	[7]29.772	29.907	29.943	30.065	29.844	29.759	[9]29.717	29.725	29.737	....
Rochester, N. Y	621	(6)	(6)	(6)	[8]29.474	29.394	29.374	29.380	29.349	29.840	29.244	29.263	29.427	....
Roseburg, Oreg	511	29.489	29.527	29.458	29.519	29.625	29.599	29.577	29.468	29.385	29.407	29.461	29.420	29.495
Sacramento, Cal	64	29.820	[1]29.854	29.834	29.917	[2]30.053	30.095	30.080	[3]29.971	[1]29.895	29.912	29.886	[3]29.876	29.983
Saint Louis, Mo	571	29.455	29.492	29.454	29.473	29.525	29.505	29.608	29.430	29.401	29.828	29.854	29.390	29.451
Saint Michael's, Fort, Alaska	30	29.806	29.803	29.545	29.571	29.803	29.758	29.701	30.180	29.715	29.958	29.745	29.855	29.782
Saint Paul, Minn	801	29.031	29.167	29.204	29.213	29.109	29.176	29.255	29.157	29.127	29.098	29.069	29.145	29.150

Saint Vincent, Minn	804	29.055	29.130	29.187	29.170	20.083	29.214	29.278	29.249	29.140	29.185	29.109	29.079	29.157
Salt Lake City, Utah	4,348	25.657	25.687	25.689	25.606	25.714	25.742	25.776	25.593	25.506	25.526	25.601	25.586	25.640
San Diego, Cal	67	29.888	29.888	29.835	29.909	29.969	30.000	30.044	29.966	29.949	29.942	29.919	29.882	20.938
Sandusky, Ohio	639	([10])	29.393	29.400	29.437	29 414	29.385	29.426	29.383	29.336	29.251	29.270	29.382	....
Sandy Hook, N. J	28	29.955	30.018	30.058	30.146	30.129	30.000	30.115	30.067	30.002	29.829	29.931	30.065	30.034
Sanford, Fla	36	30.035	29.962	29.936	29.973	30.069	30.098	30.145	30.058	30.031	29.918	29.933	29.935	30.008
San Francisco, Cal	60	29.916	29.935	29.889	29.945	30.070	30.088	30.077	29.963	29.898	29.931	29.927	[2]29.924	29.961
Savannah, Ga	87	29.992	29.951	29.951	30.006	30.114	30.081	[1]30.131	30.036	29.992	29.865	29.908	[3]29.944	29.998
Shaw, Fort, Mont	3,550 B	26.416	26.419	26.471	26.347	26.315	26.379	26.414	26.364	26.277	26.364	26.384	26.344	26.371
Shreveport, La	227	29.832	29.808	29.853	29.815	29.949	29.941	30.063	29.785	29.787	29.741	29.751	29.770	29.847
Sitka, Alaska	63	30.000	29.943	29.772	29.840	29.771	29.593	29.785	30.040	29.688	29.880	29.800	29.789	29.825
Smithville, N. C	34	30.028	29.989	29.979	30.061	30.168	30.130	30.155	30.078	30.026	29.883	29.958	30.023	30.040
Spokane Falls, Wash T	1,906	28.006	27.976	28.006	27.949	27.961	28.056	[11]28.141	27.967	27.846	27.866	27.907	27.861	27.962
Springfield, Ill	644	29.350	29.401	29.384	29.407	29.431	29.414	29.509	29.347	29.318	29.267	29.291	29.335	29.371
Stockton, Fort, Tex	3,010 B	27.014	27.043	27.065	26.987	27.077	27.088	27.134	26.983	26.923	26.920	26.936	26.963	27.011
Tatoosh Island, Wash T	86	....	....	....	[12]29.903	29.925	29.917	29.958	29.917	29.817	29.828	29.929	29.878	....
Thomas, Camp, Ariz	2,710 B	([6])	([6])	([6])	[13]27.216	27.303	27.339	27.374	27.257	27.195	27.176	27.191	27.161	....
Toledo, Ohio	651	29.284	29.357	29.370	29.396	29.369	29.353	29.398	29.309	29.305	29.216	29.229	20.347	20.328
Unalashka, Alaska	13	29.975	29.974	29.618	29.823	29.951	29.635	29.454	29.755	29.589	29.756	29.750	29.769	29.754
Vicksburg, Miss	244	29.837	29.794	29.802	29.807	29.933	29.912	30.014	29.836	29.778	29.729	29.760	20.749	29.829
Washington City	106	29.917	29.960	29.981	30.064	30.048	30.039	30.061	29.990	29.944	29.802	29.868	29.971	29.974
West Las Animas, Colo	3,899	26.054	26.119	26.131	25.998	26.027	26.049	26.084	25.948	25.870	25.938	26.005	26.037	26.022
Wilmington, N. C	52	30.009	29.979	29.974	30.057	30.160	30.117	30.142	30.061	30.001	29.863	29.934	30.005	30 025
Yankton, Dak	1,228	28.688	28.746	28.768	28.744	28.718	28.765	28.858	28.761	28.668	28.663	28.657	28.671	28.725
Yuma, Ariz	141	29.662	29.688	29.658	29.759	[3]29.849	([6])	29.978	29.887	29.816	[2]29.757	29.708	29.652	....

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[1] 30 days only.
[2] 29 days only.
[3] 28 days only.
[4] 25 days only.
[5] Observations discontinued April 1, 1881.
[6] No record.
[7] Observations recommenced October 1, 1883.
[8] 27 days only.
[9] Observations recommenced October 10, 1883.
[10] Observations recommenced July 20, 1883.
[11] 26 days only.
[12] Observations began October 1, 1883.
[13] 19 days only.

APPENDIX 25.

Mean normal barometer at stations of the Signal Service, United States Army, for each month of the year, computed from the three telegraphic observations, and from November 1, 1879, to October 31, 1883, inclusive, except at stations opened subsequent to the former date.

[The means in this table have been reduced to the elevation in use on December 31, 1884.]

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
		Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Albany, N. Y	Dec. 22, 1873	30.072	30.066	29.847	29.877	29.919	29.840	29.868	29.943	29.980	30.039	30.070	30.031	29.963
Alpena, Mich	Sept. 10, 1872	29.375	29.382	29.320	29.321	29.337	29.258	29.311	29.374	29.377	29.398	29.380	29.351	29.349
Apache, Fort, Ariz	Oct. 9, 1877	25.015	25.021	25.011	24.985	24.966	25.007	25.074	25.073	25.060	25.025	25.047	25.066	25.029
Assinaboine, Fort, Mont	Oct. 6, 1879	27.151	27.137	27.151	27.092	27.155	27.092	27.153	27.160	27.168	27.114	27.227	27.149	27.146
Atlanta, Ga	Sept. 25, 1878	28.974	29.001	28.865	28.868	28.884	28.876	28.910	28.895	28.917	28.949	29.008	28.964	28.926
Atlantic City, N. J	Dec. 10, 1873	30.155	30.167	29.952	29.979	30.014	29.943	29.973	30.031	30.051	30.111	30.178	30.111	30.055
Augusta, Ga	Nov. 2, 1870	30.011	30.035	29.874	29.871	29.875	29.843	29.870	29.866	29.900	29.946	30.034	29.998	29.927
Baltimore, Md	Jan. 1, 1871	30.152	30.159	29.961	29.971	29.994	29.922	29.960	30.008	30.034	30.101	30.169	30 107	30.045
Barnegat City, N. J	Dec. 10, 1873	30.135	30.150	29.937	29.964	30.001	29.925	29.956	30.016	30.037	30.098	30.155	30.090	30.039
Bennett, Fort, Dak	Dec. 22, 1879	28.452	28.470	28.444	28.360	28.337	28.288	28.341	28.343	28.388	28.388	28.473	28.452	28.395
Benton, Fort, Dak	Oct. 11, 1879	27.209	27.193	27.201	27.139	27.167	27.124	27.155	27.158	27.221	27.198	27.289	27.203	27.188
Bismarck, Dak	Sept. 15, 1874	28.172	28.176	28.197	28.144	28.103	28.081	28.155	28.171	28.169	28.159	28.217	28.217	28.163
Block Island, R. I	Sept. 1, 1880	30.089	30.137	29.867	29.917	29.988	29.906	29.942	29.997	30.035	30.095	30.128	30.019	30.010
Boise City, Idaho	July 1, 1877	27.259	27.257	27.217	27.125	27.131	27.092	27.160	27.131	27.181	27.212	27.338	27.246	27.196
Boston, Mass	Nov. 1, 1870	29.982	29.984	29.775	29.804	29.879	29.791	29.821	29.890	29.931	29.982	29.996	29.933	29.897
Brownsville, Tex	Aug. 25, 1875	30.044	30.043	29.953	29.879	29.867	29.892	29.950	29.914	29.928	29.959	30.052	30.050	29.959
Buffalo, N. Y	Nov. 1, 1870	29.329	29.335	29.207	29.218	29.252	29.191	29.240	29.293	29.315	29.342	29.343	29.295	29.280
Buford, Fort, Dak	Oct. 23, 1878	27.988	27.993	28.013	27.962	27.936	27.894	27.972	27.989	28.013	27.985	28.039	28.039	27.985
Cairo, Ill	June 1, 1871	29.782	29.779	29.671	29.624	29.628	29.607	29.677	29.657	29.695	29.714	29.816	29.782	29.703
Cape Henry, Va	Dec. 15, 1873	30.161	30.183	29.979	29.997	30.023	29.958	29.994	30.022	30.048	30.106	30.189	30.130	30.066
Cape May, N. J	May 24, 1871	30.132	30.150	29.933	29.905	29.985	29.920	29.959	30.013	30.032	30.091	30.159	30.104	30.037
Cape Mendocino, Cal	July 27, 1882	29.533	29.406	29.282	29.351	29.318	29.341	29.285	29.301	29.279	29.321	29.273	29.495	29.349
Cedar Keys, Fla	Nov. 7, 1879	30.139	30.167	30.072	30.044	30.007	30.028	30.062	30.007	30.015	30.034	30.128	30.131	30.070
Charleston, S. C	Jan. 5, 1871	30.124	30.153	29.986	29.993	30.000	29.964	29.990	29.981	30.006	30.046	30.141	30.107	30.041
Charlotte, N. C	Oct. 6, 1878	29.293	29.320	29.150	29.170	29.191	29.156	29.194	29.198	29.224	29.268	29.327	29.270	29.230
Chattanooga, Tenn	Jan. 8, 1679	29.344	29.361	29.225	29.218	29.235	29.220	29.262	29.246	29.274	29.307	29.382	29.341	29.285
Cheyenne, Wyo	Nov. 1, 1870	23.869	23.913	23.930	23.918	23.974	24.033	24.134	24.136	24.094	24.002	24.002	23.922	23.994
Chicago, Ill	Nov. 1, 1870	29.365	29.371	29.283	29.262	29.271	29.219	29.297	29.319	29.329	29.347	29.382	29.358	29.317
Chincoteague, Va	Mar. 16, 1880	30.162	30.200	29.961	30.002	30.027	29.959	29.993	30.034	30.055	30.112	30.193	30.118	30.068
Cincinnati, Ohio	Nov. 1, 1870	29.486	29.495	29.366	29.356	29.367	29.329	29.394	29.400	29.426	29.452	29.518	29.478	29.422
Cleveland, Ohio	Nov. 1, 1870	29.363	29.368	29.245	29.252	29.270	29.220	29.284	29.317	29.337	29.359	29.391	29.346	29.318
Columbus, Ohio	July 1, 1878	29.257	29.267	29.133	29.131	29.155	29.115	29.179	29.198	29.222	29.244	29.292	29.244	29.203
Concho, Fort, Tex	Oct. 10, 1875	28.161	28.159	28.098	28.031	28.015	28.034	28.105	28.108	28.125	28.113	28.200	28.179	28.111
Custer, Fort, Mont	Dec. 5, 1878	26.763	26.761	26.789	26.776	26.767	26 741	26.825	26.825	26.851	26.816	26.886	26.826	26.802
Davenport, Iowa	May 24, 1871	29.436	29.432	29.354	29.305	29.313	29.267	29.353	29.367	29.376	29.389	29.453	29.438	29.374

Davis, Fort, Tex	Dec. 24, 1877	25.164	25.185	25.157	25.145	25.140	25.181	25.248	25.250	25.252	25.122	25.252	25.205	25.192
Dayton, Wash. T	July 1, 1879	28.365	28.348	28.280	28.233	28.252	28.210	28.260	28.257	28.266	28.245	28.425	28.338	28.290
Deadwood, Dak	Nov. 1, 1878	25.214	25.264	25.285	25.278	25.318	25.346	25.440	25.435	25.405	25.340	25.350	25.274	25.329
Delaware Breakwater, Del	Jan. 28, 1880	30.175	30.165	29.957	29.981	30.010	29.941	29.976	30.024	30.043	30.101	30.176	30.090	30.063
Denver, Colo	Nov. 19, 1871	24.644	24.685	24.676	24.646	24.681	24.706	24.828	24.832	24.818	24.735	24.781	24.699	24.727
Des Moines, Iowa	Aug. 1, 1878	29.193	29.190	29.180	29.058	29.058	29.021	29.118	29.126	29.127	29.187	29.205	29.201	29.139
Detroit, Mich	Nov. 1, 1870	29.372	29.377	29.270	29.271	29.286	29.226	29.294	29.335	29.351	29.373	29.391	29.352	29.325
Dodge City, Kans	Sept. 15, 1874	27.414	27.430	27.379	27.306	27.320	27.319	27.426	27.444	27.457	27.404	27.487	27.438	27.402
Dubuque, Iowa	July 10, 1873	29.356	29.363	29.293	29.247	29.251	29.206	29.292	29.314	29.316	29.330	29.378	29.370	29.309
Duluth, Minn	Nov. 1, 1870	29.290	29.293	29.281	29.236	29.227	29.164	29.241	29.288	29.240	29.258	29.292	29.308	29.259
Eastport, Me	Apr. 1, 1873	29.975	29.978	29.788	29.802	29.929	29.819	29.841	29.901	29.966	29.997	29.988	29.937	29.910
Elliott, Fort, Tex	Nov. 29, 1879	27.258	27.272	27.241	27.168	27.165	27.169	27.305	27.278	27.293	27.257	27.332	27.270	27.251
El Paso, Tex	Nov. 5, 1877	26.267	26.263	26.226	26.194	26.160	26.175	26.255	26.264	26.277	26.250	26.305	26.293	26.244
Erie, Pa	May 25, 1873	29.360	29.369	29.234	29.249	29.277	29.219	29.274	29.312	29.332	29.355	29.373	29.329	29.307
Escanaba, Mich	May 24, 1871	29.359	29.369	29.332	29.316	29.316	29.242	29.299	29.357	29.346	29.362	29.361	29.349	29.334
Fort Smith, Ark	June 1, 1882	29.690	29.780	29.586	29.431	29.482	29.485	29.563	29.558	29.588	29.534	29.696	29.657	29.588
Galveston, Tex	Apr. 19, 1871	30.078	30.086	30.005	29.944	29.923	29.943	29.999	29.957	29.972	29.991	30.097	30.095	30.008
Grand Haven, Mich	May 24, 1871	29.389	29.390	29.316	29.308	29.318	29.255	29.330	29.362	29.367	29.383	29.404	29.375	29.350
Grant, Fort, Ariz	Nov. 1, 1875	25.217	25.222	25.184	25.171	25.157	25.202	25.242	25.232	25.278	25.232	25.262	25.251	25.221
Hatteras, N. C	Dec. 1, 1880	30.156	30.104	29.989	30.022	30.046	29.990	30.021	30.029	30.054	30.094	30.178	30.131	30.075
Helena, Mont	Oct. 15, 1879	25.805	25.819	25.829	25.777	25.809	25.804	25.889	25.879	25.881	25.829	25.932	25.838	25.841
Huron, Dak	July 1, 1881	28.666	28.691	28.660	28.538	28.554	28.526	28.597	28.600	28.601	28.593	28.671	28.658	28.618
Indianapolis, Ind	Feb. 10, 1871	29.287	29.293	29.180	29.167	29.182	29.146	29.223	29.233	29.255	29.271	29.322	29.287	29.237
Indianola, Tex	May 1, 1872	30.092	30.083	30.007	29.942	29.924	29.943	30.003	29.964	29.973	29.996	30.111	30.111	30.012
Jacksonville, Fla	Sept. 11, 1871	30.131	30.161	30.033	30.009	30.007	29.999	30.027	29.990	30.005	30.031	30.127	30.119	30.058
Keokuk, Iowa	July 16, 1871	29.436	29.431	29.351	29.286	29.290	29.259	29.331	29.355	29.367	29.384	29.455	29.435	29.367
Key West, Fla	Nov. 1, 1870	30.104	30.128	30.072	30.051	29.989	30.036	30.065	30.000	29.977	29.983	30.060	30.092	30.046
Kittyhawk, N. C	Jan. 15, 1875	30.181	30.211	30.015	30.013	30.067	30.004	30.035	30.055	30.076	30.123	30.203	30.151	30.094
Knoxville, Tenn	Jan. 1, 1871	29.128	29.147	29.016	29.012	29.034	29.020	29.066	29.052	29.081	29.109	29.178	29.129	29.081
La Crosse, Wis	Oct. 15, 1872	29.275	29.279	29.226	29.176	29.169	29.120	29.200	29.233	29.231	29.248	29.282	29.286	29.227
Leavenworth, Kans	May 21, 1871	29.224	29.222	29.149	29.061	29.059	29.038	29.140	29.139	29.144	29.154	29.246	29.231	29.151
Lewiston, Idaho	July 1, 1870	29.340	29.324	29.238	29.149	29.164	29.100	29.143	29.129	29.162	29.208	29.424	29.260	29.220
Little Rock, Ark	July 1, 1879	29.814	29.814	29.716	29.655	29.654	29.653	29.718	29.693	29.731	29.741	29.846	29.817	29.738
Los Angeles, Cal	July 1, 1877	29.733	29.748	29.699	29.668	29.599	29.571	29.605	29.562	29.557	29.614	29.702	29.720	29.648
Louisville, Ky	Sept. 11, 1871	29.548	29.556	29.432	29.413	29.424	29.393	29.459	29.450	29.483	29.508	29.590	29.548	29.484
Lynchburg, Va	May 24, 1871	29.468	29.480	29.301	29.321	29.352	29.302	29.345	29.369	29.392	29.441	29.505	29.437	29.393
Mackinaw City, Mich	Aug. 20, 1882	29.364	29.474	29.327	29.316	29.286	29.231	29.284	29.381	29.429	29.396	29.445	29.345	29.356
Macon, Fort, N. C	May 23, 1878	30.158	30.197	30.003	30.030	30.044	29.990	30.021	30.025	30.050	30.094	30.174	30.133	30.077
Maginniss, Fort, Mont	July 14, 1882	25.452	25.573	25.560	25.444	25.548	25.575	25.651	25.661	25.641	25.466	25.592	25.512	25.556
Marquette, Mich	May 1, 1871	29.274	29.297	29.276	29.262	29.261	29.188	29.239	29.302	29.281	29.291	29.287	29.270	29.269
Memphis, Tenn	Feb. 28, 1871	29.813	29.820	29.710	29.660	29.652	29.648	29.717	29.689	29.729	29.745	29.855	29.813	29.738
Milwaukee, Wis	Nov. 1, 1870	29.303	29.307	29.239	29.224	29.228	29.171	29.248	29.279	29.280	29.292	29.315	29.296	29.265
Mobile, Ala	Nov. 7, 1870	30.115	30.132	30.034	30.001	29.948	29.951	30.025	29.974	29.994	30.024	30.143	30.121	30.038
Montgomery, Ala	Nov. 9, 1870	29.935	29.955	29.834	29.810	29.803	29.795	29.829	29.796	29.827	29.862	29.964	29.939	29.862
Moorhead, Minn	Jan. 1, 1881	29.090	29.074	29.049	28.993	28.962	28.894	28.958	28.982	28.988	28.990	29.043	29.039	29.005
Mount Washington, N. H	Dec. 1, 1870	23.447	23.459	23.346	23.493	23.757	23.779	23.861	23.918	23.892	23.777	23.589	23.472	23.649
Nashville, Tenn	Nov. 1, 1870	29.565	29.574	29.455	29.427	29.420	29.406	29.474	29.440	29.491	29.512	29.604	29.567	29.495
New Haven, Conn	Dec. 10, 1872	30.030	30.035	29.824	29.849	29.902	29.822	29.853	29.921	29.948	30.005	30.040	29.974	29.934
New London, Conn	Jan. 10, 1871	30.098	30.112	29.892	29.922	29.987	29.900	29.933	29.997	30.027	30.086	30.122	30.044	30.010
New Orleans, La	Nov. 1, 1870	30.078	30.094	30.008	29.962	29.942	29.953	30.000	29.949	29.966	29.992	30.096	30.091	30.011
New York City	Nov. 1, 1870	29.985	29.994	29.785	29.808	29.854	29.779	29.815	29.877	29.903	29.960	30.001	29.934	29.891

Mean normal barometer at stations of the Signal Service, United States Army, for each month of the year, &c.—Continued.

Station.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	
		Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Norfolk, Va	Jan. 1, 1871	30.150	30.175	29.969	29.986	30.013	29.947	29.984	30.010	30.034	30.092	30.176	30.117	30.054
North Platte, Nebr	Sept. 18, 1874	27.063	27.089	27.056	26.993	27.010	27.009	27.109	27.109	27.101	27.076	27.134	27.095	27.070
Olympia, Wash	July 1, 1877	30.028	30.056	30.025	29.951	30.026	29.995	30.035	30.011	30.008	29.992	30.110	29.947	30.015
Omaha, Nebr	Nov. 1, 1870	28.918	28.916	28.869	28.775	28.777	28.751	28.857	28.866	28.862	28.872	28.945	28.935	28.862
Oswego, N. Y	Nov. 1, 1870	29.783	29.783	29.633	29.637	29.672	29.605	29.638	29.704	29.728	29.774	29.790	29.736	29.707
Palestine, Tex	Dec. 3, 1881	29.629	29.609	29.533	29.419	29.444	29.459	29.529	29.506	29.525	29.477	29.624	29.596	29.529
Pensacola, Fla	Oct. 27, 1879	30.138	30.157	30.056	30.019	29.996	29.997	30.035	29.986	30.008	30.037	30.146	30.137	30.059
Philadelphia, Pa	Jan. 1, 1871	30.058	30.064	29.859	29.878	29.911	29.839	29.874	29.932	29.958	30.019	30.075	30.011	29.956
Pike's Peak, Colo	Nov. 1, 1873	17.467	17.515	17.580	17.638	17.767	17.948	18.074	18.074	17.963	17.765	17.630	17.554	17.748
Pittsburgh, Pa	Nov. 1, 1870	29.304	29.320	29.167	29.174	29.202	29.158	29.218	29.248	29.274	29.299	29.350	29.288	29.250
Poplar River, Mont	May 1, 1882	27.900	27.986	27.933	27.772	27.824	27.762	27.844	27.872	27.845	27.678	27.937	27.859	27.851
Port Huron, Mich	July 25, 1874	29.386	29.386	29.283	29.286	29.309	29.238	29.297	29.342	29.359	29.384	29.402	29.358	29.336
Portland, Me	Jan. 15, 1871	30.037	30.033	29.836	29.852	29.944	29.847	29.866	29.939	29.993	30.037	30.046	29.989	29.952
Portland, Oreg	Nov. 1, 1871	30.041	30.071	30.018	29.936	29.993	29.968	29.998	29.974	29.967	29.987	30.110	29.965	30.003
Prescott, Ariz	Nov. 19, 1873	24.699	24.708	24.681	24.662	24.659	24.708	24.791	24.781	24.763	24.724	24.739	24.735	24.721
Provincetown, Mass	Feb. 15, 1882	30.120	30.149	29.933	29.954	29.957	29.898	29.938	29.989	30.026	30.097	30.053	29.996	30.009
Red Bluff, Cal	July 1, 1877	29.808	29.789	29.698	29.640	29.601	29.530	29.529	29.515	29.551	29.651	29.763	29.752	29.652
Rio Grande City, Tex	May 28, 1875	29.866	29.849	29.791	29.720	29.684	29.715	29.758	29.737	29.768	29.817	29.917	29.898	29.793
Rochester, N. Y	Nov. 1, 1870	29.418	29.425	29.283	29.294	29.333	29.279	29.297	29.353	29.385	29.426	29.448	29.390	29.361
Roseburg, Oreg	July 15, 1877	29.596	29.598	29.539	29.472	29.510	29.491	29.513	29.494	29.483	29.521	29.627	29.508	29.529
Sacramento, Cal	July 1, 1877	30.100	30.082	29.995	29.955	29.894	29.835	29.828	29.816	29.837	29.940	30.056	30.060	29.950
Saint Louis, Mo	Nov. 1, 1870	29.523	29.517	29.418	29.269	29.377	29.381	29.432	29.423	29.445	29.467	29.556	29.516	29.451
Saint Paul, Minn	Nov. 1, 1870	29.167	29.172	29.138	29.080	29.077	29.032	29.109	29.132	29.121	29.185	29.176	29.188	29.127
Saint Vincent, Minn	Sept. 5, 1880	29.230	29.212	29.214	29.154	29.115	29.028	29.074	29.113	29.093	29.123	29.206	29.190	29.146
Salt Lake City, Utah	Mar. 22, 1874	25.675	25.683	25.638	25.559	25.573	25.574	25.652	25.637	25.651	25.646	25.750	25.684	25.644
San Diego, Cal	Nov. 1, 1871	30.027	30.058	30.004	29.965	29.893	29.864	29.894	29.849	29.840	29.905	29.991	30.009	29.942
Sandusky, Ohio	Aug. 2, 1877	29.418	29.419	29.302	29.309	29.338	29.269	29.335	29.364	29.380	29.405	29.439	29.399	29.365
Sandy Hook, N. J	Dec. 10, 1873	30.132	30.140	29.928	29.955	30.001	29.917	29.948	30.012	30.037	30.103	30.148	30.083	30.034
San Francisco, Cal	Mar. 8, 1871	30.102	30.095	30.024	29.997	29.948	29.911	29.916	29.892	29.893	29.972	30.067	30.066	29.990
Savannah, Ga	Jan. 1, 1871	30.091	30.126	29.968	29.968	29.970	29.942	29.966	29.948	29.974	30.012	30.102	30.076	30.012
Shaw, Fort, Mont	Apr. 1, 1880	26.323	26.315	26.345	26.265	26.294	26.280	26.363	26.361	26.394	26.352	26.429	26.335	26.338
Shreveport, La	Sept. 3, 1871	29.893	29.896	29.811	29.743	29.740	29.751	29.808	29.778	29.811	29.818	29.921	29.900	29.822
Sill, Fort, Ind. T	June 23, 1875	28.850	28.853	28.777	28.699	28.693	28.699	28.783	28.773	28.802	28.790	28.892	28.866	28.790
Smithville, N. C	Oct. 15, 1875	30.146	30.187	29.999	30.018	30.032	29.983	30.015	30.009	30.031	30.076	30.167	30.127	30.066
Spokane Falls, Wash	Feb. 5, 1881	28.043	28.049	28.016	27.936	27.967	27.925	27.983	27.971	27.968	27.943	28.123	28.042	27.997
Springfield, Ill	July 1, 1879	29.436	29.438	29.335	29.297	29.307	29.271	29.359	29.358	29.371	29.390	29.457	29.431	29.371
Stockton, Fort, Tex	Feb. 26, 1876	27.019	27.021	26.974	26.924	26.890	26.912	26.995	27.002	27.022	26.998	27.064	27.041	26.988
Thomas, Camp, Ariz	Sept. 22, 1877	27.285	27.276	27.237	27.159	27.120	27.126	27.200	27.180	27.196	27.217	27.289	27.814	27.217
Toledo, Ohio	Nov. 1, 1870	29.390	29.391	29.281	29.282	29.290	29.238	29.305	29.338	29.358	29.378	29.410	29.372	29.336

Vicksburg, Miss	Sept. 10, 1871	29.890	29.905	29.812	20.766	29.753	29.764	29.815	29.771	29.803	29.824	20.929	29.908	29.829
Washington City	Nov. 1, 1870	30.081	30.086	29.895	20.906	29.927	29.862	23.902	29.948	29.973	30.031	30.099	30.040	29.979
West Las Animas, Colo	Oct. 1, 1881	26.009	26.048	26.020	25.899	25.958	26.003	26.090	26.116	26.102	25.950	26.118	26.049	26.080
Wilmington, N. C	Jan. 1, 1871	30.117	30.152	29.965	29.982	29.997	29.947	25.980	29.983	30.007	30.059	30.188	30.094	30.035
Yankton, Dak	Apr. 1, 1873	28.756	28.771	28.783	28.638	28.631	28.607	28.701	28.702	28.701	28.707	28.791	28.781	28.710
Yuma, Ariz	Nov. 18, 1873	29.929	29.919	29.830	29.761	29.664	29.616	29.658	29.647	29.664	29.758	29.898	29.911	29.771

APPENDIX 26.

Table showing the range of the barometer at stations of the Signal Service, United States Army, for each month of the year 1883.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Albany, N. Y	1.131	1.192	1.301	0.842	0.882	1.045	0.551	0.607	1.156	1.449	0.959	1.443
Alexander, Fort, Alaska	2.117	1.607	1.192	1.455	1.252	1.179						
Alpena, Mich	1.229	1.100	1.252	1.028	0.711	0.860	0.682	0.697	1.085	1.368	1.064	0.969
Apache, Fort, Ariz	0.710	0.748	0.525	0.724	0.361	0.326	0.246	0.224	0.379	0.456	0.499	0.494
Assinaboine, Fort, Mont	1.120	0.907	1.075	1.174	0.713	0.546	0.591	0.527	0.884	0.995	1.153	1.325
Atlanta, Ga	0.922	0.583	0.788	0.683	0.666	0.411	0.443	0.331	0.405	0.611	0.580	0.559
Atlantic City, N. J	1.168	1.065	1.349	0.857	0.934	0.835	0.514	0.588	0.829	1.175	0.925	1.129
Augusta, Ga	1.064	0.589	0.841	0.741	0.691	0.466	0.501	0.391	0.430	0.663	0.650	0.548
Baltimore, Md	1.042	1.077	1.195	0.817	0.988	0.802	0.507	0.590	0.880	1.128	0.904	1.092
Barnegat City, N. J	1.213	1.100	1.343	0.846	0.920	0.884	0.535	0.600	0.872	1.190	0.901	1.172
Behring's Island, Behring Sea	1.446	1.686	1.168	1.191	1.055	0.910	0.672	1.035	1.684	1.217	1.877	1.495
Bennett, Fort, Dak	1.170	1.082	1.274	1.324	1.154	0.591	0.664	0.783	0.808	1.102	1.142	1.382
Benton, Fort, Mont	1.130	0.876	1.085	1.159	0.766	0.528	1.470	0.515	0.920	1.071	1.111	1.282
Bismarck, Dak	1.229	0.953	1.217	1.065	1.013	0.588	0.848	0.730	0.932	1.130	1.072	1.468
Block Island, R. I	1.168	1.181	1.576	0.871	0.899	0.981	0.502	0.583	0.979	1.254	0.980	1.423
Boisé City, Idaho	0.910	1.154	0.874	0.830	0.834	0.692	[1]0.346	0.431	0.549	0.637	1.055	0.974
Boston, Mass	1.019	1.307	1.408	0.907	0.881	1.070	0.546	0.658	1.044	1.404	1.084	1.489
Brownsville, Tex	0.763	0.884	0.785	0.975	0.417	0.363	0.293	0.228	0.314	0.504	0.759	0.749
Buffalo, N. Y	1.097	1.007	1.183	0.734	0.720	0.901	0.549	0.582	1.091	1.419	0.918	1.067
Buford, Fort, Dak	1.242	1.044	1.206	1.115	0.914	0.558	0.767	0.598	0.927	0.980	1.100	1.407
Cairo, Ill	1.035	1.066	1.012	0.966	0.672	0.613	0.618	0.342	0.407	0.842	1.104	0.884
Canby, Fort, Wash									[2]0.615	1.050	0.914	1.051
Cape Henry, Va	1.200	0.916	1.182	0.899	0.945	0.669	0.584	0.453	0.635	0.950	0.837	0.883
Cape May, N. J	1.167	1.030	1.198	0.848	0.945	0.741	0.541	0.577	0.773	1.142	0.857	1.159
Cape Mendocino, Cal	0.559	1.048	0.829	0.902	0.667	0.551	0.401	0.324	0.468	0.669	0.456	0.626
Cedar Keys, Fla	0.955	0.533	0.810	0.493	0.524	0.308	0.307	0.356	0.391	0.333	0.399	0.320
Charleston, S. C	1.098	0.503	0.891	0.753	0.780	0.474	0.484	0.357	0.591	0.605	0.669	0.563
Charlotte, N. C	0.922	0.666	0.889	0.811	0.837	0.486	0.490	0.371	0.465	0.781	0.655	0.691
Chattanooga, Tenn	0.904	0.719	0.891	0.809	0.716	0.428	0.505	0.295	0.432	0.672	0.722	0.666
Cheyenne, Wyo	0.707	1.073	0.896	1.273	0.877	0.531	0.431	0.412	0.678	0.759	0.881	0.899
Chicago, Ill	1.170	1.111	1.050	0.827	0.806	0.762	0.643	0.531	0.872	1.140	1.055	0.986
Chincoteague, Va	1.194	0.975	1.245	0.893	0.922	0.723	0.566	0.495	0.720	1.062	0.849	1.034
Cincinnati, Ohio	1.152	0.934	0.935	0.852	0.788	0.699	0.611	0.407	0.684	1.007	1.016	0.907
Cleveland, Ohio	1.011	0.910	1.069	0.670	0.818	0.826	0.567	0.476	0.869	1.291	1.029	0.922
Coleman City, Tex	0.749	1.034	0.836	0.986	0.495	0.622	0.394	0.304	(3)			
Columbus, Ohio	1.073	0.881	0.990	0.707	0.809	0.722	0.533	0.423	0.734	1.111	1.022	0.990
Concho, Fort, Tex	0.675	1.064	0.812	1.077	0.477	0.485	0.414	0.342	0.440	0.661	0.864	0.889

Custer, Fort, Mont	([4])	([4])	([4])	([4])	([4])	([4])	[5]0.348	0.566	0.888	0.924	1.103	1.219
Davenport, Iowa	1.130	1.215	1.128	0.878	0.876	0.590	0.688	0.562	0.762	1.181	1.166	0.991
Davis, Fort, Tex	0.452	0.828	0.615	0.846	0.516	0.380	0.351	0.302	0.440	0.598	0.638	0.615
Dayton, Wash	0.958	1.376	0.968	0.702	0.892	0.678	0.360	0.464	0.596	0.909	0.992	1.441
Deadwood, Dak	0.980	0.907	0.998	1.141	0.914	0.510	0.564	0.559	0.759	0.804	0.831	1.111
Delaware Breakwater, Del	1.174	1.009	1.360	0.867	0.943	0.799	0.540	0.580	0.818	1.154	0.873	1.150
Denver, Colo	0.827	1.191	0.948	1.403	0.988	0.530	0.422	0.424	0.735	0.797	0.875	0.984
Des Moines, Iowa	1.183	1.289	1.188	0.996	0.994	0.534	0.635	0.650	0.704	1.037	1.216	1.110
Detroit, Mich	1.066	0.956	1.125	0.735	0.712	0.876	0.588	0.508	0.941	1.351	1.124	0.971
Dodge City, Kans	0.950	1.364	1.045	1.581	0.989	0.590	0.551	0.441	0.670	0.940	1.084	1.130
Dubuque, Iowa	1.172	1.206	1.178	0.894	0.799	0.626	0.671	0.625	0.842	1.126	1.129	1.082
Duluth, Minn	1.167	1.091	1.548	1.109	0.942	0.596	0.789	0.904	0.772	1.273	1.321	1.158
Eastport, Me	1.194	1.404	1.652	1.038	0.946	1.076	0.615	0.621	1.246	1.593	1.590	1.859
Elliott, Fort, Tex	0.941	1.090	0.834	1.177	0.695	0.489	0.439	0.330	0.517	0.819	0.985	1.055
El Paso, Tex	0.685	0.892	0.577	0.975	0.472	0.486	0.414	0.373	0.580	0.638	0.748	0.619
Erie, Pa	1.048	0.916	1.169	0.720	0.767	0.864	0.538	0.541	1.010	1.396	1.028	1.000
Escanaba, Mich	1.336	1.187	1.381	0.916	0.820	0.758	0.732	0.791	0.918	1.267	1.085	1.070
Fort Smith, Ark	0.970	1.157	0.969	1.017	0.682	0.539	0.519	0.341	0.395	0.883	1.064	1.055
Galveston, Tex	0.759	0.955	0.906	0.953	0.406	0.379	0.316	0.317	0.349	0.508	0.803	0.809
Grand Haven, Mich	1.090	1.037	1.112	0.877	0.709	0.777	0.688	0.572	0.922	1.222	1.086	1.069
Grant, Fort, Ariz	0.627	0.623	0.407	0.639	0.306	0.248	([6])	0.260	0.348	0.413	0.495	0.460
Hatteras, N. C	1.317	0.702	0.991	0.911	0.851	0.568	0.557	0.399	0.530	0.752	0.691	0.800
Helena, Mont	0.779	1.011	0.816	0.927	0.743	0.543	0.379	0.424	0.777	0.913	0.925	1.167
Huron, Dak	1.225	1.189	1.335	1.231	1.189	0.586	0.740	0.780	0.665	1.156	1.102	1.372
Indianapolis, Ind	1.127	0.996	0.941	0.762	0.822	0.765	0.616	0.425	0.700	1.068	1.045	0.901
Indianola, Tex	0.771	0.991	0.870	1.033	0.458	0.394	0.368	0.307	0.345	0.547	0.845	0.868
Jacksonville, Fla	1.087	0.510	0.822	0.601	0.641	0.368	0.388	0.371	0.411	0.374	0.475	0.382
Keokuk, Iowa	1.087	1.192	1.119	0.974	0.860	0.576	0.742	0.503	0.710	1.072	1.140	0.984
Key West, Fla	0.497	0.335	0.548	0.337	0.407	0.200	0.178	0.260	0.334	0.333	0.236	0.228
Kittyhawk, N. C	1.282	0.792	1.095	0.894	0.855	0.585	0.562	0.395	0.530	0.881	0.714	0.859
Knoxville, Tenn	0.931	0.758	0.809	0.782	0.730	0.434	0.517	0.315	0.453	0.701	0.721	0.662
La Crosse, Wis	1.229	1.130	1.234	1.067	0.883	0.657	0.713	0.781	0.844	1.116	1.165	1.079
Leavenworth, Kans	1.186	1.378	1.177	1.162	0.926	0.557	0.610	0.535	0.613	1.149	1.267	1.150
Lewiston, Idaho	1.122	1.518	0.976	0.784	0.945	0.734	0.427	0.509	1.136	0.966	1.036	1.555
Little Rock, Ark	0.926	1.184	0.942	0.983	0.552	0.535	0.502	0.359	0.325	0.777	1.076	0.995
Los Angeles, Cal	0.661	0.815	0.326	0.627	0.312	0.344	0.266	0.198	0.287	0.552	0.312	0.570
Louisville, Ky	1.171	0.962	0.917	0.860	0.747	0.679	0.579	0.391	0.591	0.938	0.962	0.836
Lynchburg, Va	0.967	0.862	1.005	0.869	0.925	0.607	0.496	0.467	0.688	0.984	0.737	0.904
Mackinaw City, Mich	1.353	1.136	1.363	1.010	0.747	0.833	0.741	0.788	1.079	1.826	1.113	1.039
Macon, Fort, N. C	1.195	0.640	0.969	0.928	0.809	0.516	0.546	0.379	0.566	0.687	0.703	0.750
Maginnis, Fort, Mont	0.848	0.879	0.894	1.020	0.697	0.494	0.545	0.505	0.813	0.867	0.916	1.106
Marquette, Mich	1.300	1.173	1.455	0.975	0.877	0.685	0.743	0.932	0.857	1.295	1.142	1.049
Memphis, Tenn	0.956	0.955	0.926	1.017	0.586	0.542	0.532	0.343	0.374	0.712	0.986	0.851
Milwaukee, Wis	1.153	1.138	1.153	0.950	0.731	0.681	0.684	0.615	0.873	1.184	1.038	1.089
Mobile, Ala	0.879	0.724	0.846	0.770	0.559	0.332	0.348	0.328	0.417	0.366	0.626	0.548
Montgomery, Ala	0.847	0.700	0.874	0.835	0.569	0.379	0.395	0.329	0.434	0.518	0.645	0.558
Moorhead, Minn	1.218	1.034	1.350	1.022	1.112	0.620	0.746	0.800	0.691	1.319	1.250	1.307
Mount Washington, N. H	0.952	1.162	0.944	0.857	0.738	0.989	0.457	0.574	1.240	1.168	1.610	1.698
Nashville, Tenn	1.034	0.894	0.932	0.960	0.763	0.541	0.544	0.829	0.410	0.714	0.870	0.721

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[1] Sixteen days only.

[2] Station opened September 1, 1883.

[3] Station closed.

[4] Station temporarily closed.

[5] Observations recommenced July 21, 1883.

[6] Record incomplete.

Table showing the range of the barometer at stations of the Signal Service, United States Army, for each month of the year 1883—Continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
New Haven, Conn	1.040	1.149	1.389	0.814	0.867	0.970	0.485	0.575	1.057	1.297	0.921	1.377
New London, Conn	1.189	1.179	1.485	0.841	0.888	1.005	0.505	0.597	1.006	1.304	0.929	1.476
New Orleans, La	0.803	0.791	0.912	0.858	0.481	0.823	0.276	0.307	0.392	0.364	0.676	0.599
New York City	1.049	1.161	1.236	0.837	0.880	0.958	0.527	0.656	0.962	1.256	0.912	1.279
Norfolk, Va	1.178	0.901	1.129	0.918	0.948	0.649	0.541	0.456	0.602	0.920	0.810	0.892
North Platte, Nebr	0.989	1.239	1.101	1.571	1.072	0.506	0.639	0.598	0.639	0.965	1.052	1.135
Olympia, Wash	1.201	1.353	1.092	0.736	0.750	0.569	0.466	0.462	0.663	1.006	0.990	1.212
Omaha, Nebr	1.170	1.359	1.190	1.210	1.114	0.527	0.596	0.661	0.633	0.990	1.192	1.176
Ooglaamie (Point Barrow), Alaska	1.938	1.891	1.341	1.197	1.451	0.665	0.724	(1)				
Oswego, N. Y	0.998	1.186	1.231	0.729	0.721	0.955	0.576	0.631	1.192	1.491	1.182	1.227
Palestine, Tex	0.859	1.108	0.908	0.993	0.502	0.448	0.429	0.287	0.358	0.651	0.866	0.900
Pensacola, Fla	0.834	0.666	0.851	0.694	0.555	0.324	0.336	0.334	0.380	0.374	0.574	0.508
Philadelphia, Pa	1.074	1.061	1.249	0.810	0.915	0.821	0.510	0.598	0.930	1.246	0.888	1.172
Pike's Peak, Colo	0.931	0.934	0.648	1.098	0.785	0.516	0.298	0.249	0.475	0.646	0.808	0.768
Pittsburg, Pa	0.968	0.871	1.101	0.648	0.946	0.701	0.510	0.502	0.824	1.178	0.918	0.878
Poplar River, Mont	1.262	1.012	1.166	1.099	0.869	0.582	0.680	(2)	(2)	(2)	(2)	(2)
Port Huron, Mich	1.111	0.943	1.163	0.763	0.641	0.877	0.648	0.538	1.007	1.419	1.124	0.927
Portland, Me	1.089	1.324	1.562	0.931	0 879	1.120	0.580	0.672	1.188	1.552	1.262	1.644
Portland, Oreg	1.194	1.304	1.015	0.756	0.744	0.606	0.504	0.511	0.622	0.931	0.904	1.161
Prescott, Ariz	0.715	0.806	0.452	0.789	0.416	0.294	0.260	0.216	0.355	0.518	0.525	0.537
Provincetown, Mass	1.109	1.242	1.545	0.913	0.901	1.018	0.512	0.626	0.997	1.340	1.015	1.448
Red Bluff, Cal	0.777	1.087	0.668	0.719	0.605	0.565	0.512	0.369	0.338	0.675	0.575	0.717
Rio Grande City, Tex	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	0.552	0.862	0.818
Rochester, N. Y	1.068	1.112	1.231	0.748	0.691	0.927	(3)	(3)	(3)	[4]1.448	1.092	1.069
Roseburg, Oreg	0.899	1.130	0.987	0.860	0.703	0.589	0.527	0.413	0.551	0.784	0.849	0.735
Sacramento, Cal	0.734	1.060	0.620	0.748	0.531	0.568	0.462	0.327	0.333	0.683	0.474	0.766
Saint Louis, Mo	1.092	1.160	1.104	0.966	0.749	0.659	0.676	0.384	0.504	0.999	1.201	0.992
Saint Michael's, Fort, Alaska	2.067	1.568	1.049	1.212	1.004	0.858	0.672	0.839	1.043	1.193	2.193	1.254
Saint Paul, Minn	1.128	1.075	1.298	0.966	1.008	0.557	0.706	0.846	0.787	1.164	1.239	1.231
Saint Vincent, Minn	1.264	1.206	1.527	1.022	0.937	0.708	0.791	1.088	0.868	1.320	1.257	1.174
Salt Lake City, Utah	0.951	1.169	0.798	1.031	0.720	0.563	0.315	0.398	0.558	0.737	1.045	0.921
San Diego, Cal	0.724	0.688	0.281	0.540	0.268	0.325	0.225	0.169	0.330	0.447	0.274	0.511
Sandusky, Ohio	1.021	0.917	1.083	(3)	(3)	(3)	[5]0.837	0.472	0.880	1.264	1.085	0.917
Sandy Hook, N. J	1.110	1.155	1.222	0.853	0.905	0.899	0.523	0.624	0.939	1.255	0.900	1.274
Sanford, Fla			(6)	0.553	0.608	0.288	0.325	0.373	0.408	0.362	0.871	0.321
San Francisco, Cal	0.828	1.008	0.654	0.703	0.565	0.474	0.401	0.315	0.334	0.618	0.386	0.748
Savannah, Ga	1.132	0.529	0.820	0.686	0.706	0.456	0.501	0.393	0.445	0.505	0.621	0.529
Shaw, Fort, Mont	0.959	0.855	0.953	1.070	0.721	0.569	0.543	0.474	0.799	0.966	1.042	1.167
Shreveport, La	0.878	1.053	0.942	0.990	0.584	0.481	0.428	0.818	0.880	0.714	0.932	0.908
Sill, Fort, Ind. T	0.966	1.211	0.967	1.109	0.629	0.436	0.433	(7)	0.508	(7)	(7)	(7)

Sitka, Alaska	1.457	1.483	0.983	1.869	1.197	0.942	0.814	0.547	1.271	1.487	1.710	1.594
Smithville, N. C	1.163	0.600	0.882	0.873	0.821	0.504	0.586	0.378	1.081	0.643	0.687	0.718
Spokane Falls, Wash	0.996	1.806	0.935	0.792	0.847	0.654	0.367	0.489	0.710	0.965	1.032	1.353
Springfield, Ill	1.109	1.157	1.064	0.920	0.801	0.710	0.649	0.437	0.699	1.067	1.124	0.915
Stockton, Fort, Tex	0.666	1.015	0.761	0.979	0.586	0.441	0.396	0.321	0.502	0.703	0.772	0.738
Tatoosh Island, Wash	....	....	....	....	....	....	....	....	....	[8]1.020	0.979	1.297
Thomas, Camp, Ariz	0.769	0.792	0.516	0.785	0.867	0.819	(3)	(3)	(3)	0.482	0.542	0.684
Toledo, Ohio	1.006	0.943	1.062	0.684	0.742	0.881	0.581	0.492	0.846	1.228	1.117	0.953
Unalashka, Alaska	2.263	1.617	1.330	1.831	1.096	1.210	1.076	1.051	1.559	1.031	2.044	1.521
Vicksburg, Miss	0.833	0.925	0.870	1.004	0.503	0.400	0.356	0.292	0.319	0.581	0.848	0.791
Washington City	1.026	1.049	1.176	0.830	0.994	0.742	0.517	0.564	0.848	1.122	0.878	1.031
West Las Animas, Colo	0.909	1.839	0.982	1.561	1.025	0.583	0.500	0.465	0.774	0.940	0.968	1.028
Wilmington, N. C	1.136	0.672	0.858	0.843	0.867	0.479	0.532	0.389	0.855	0.667	0.701	0.725
Yankton, Dak	1.114	1.235	1.823	1.208	1.156	0.557	0.718	0.738	0.639	1.057	1.096	1.263
Yuma, Ariz	0.742	1.057	0.896	0.815	0.431	0.431	0.840	0.826	0.377	0.644	0.473	(7)

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[1] Station closed.
[2] Record incomplete.
[3] Station temporarily closed.
[4] Observations recommenced October 10, 1883.
[5] Observations recommenced July 20, 1883.
[6] Barometric observations commenced March 26, 1883.
[7] No record.
[8] Observations began October 1, 1883.

APPENDIX 27.

Annual and mean annual temperature (in degrees Fahrenheit) at stations of the Signal Service, United States Army.

[Computed from the three telegraphic observations taken at the same moment of Washington time.]

Stations.	Established.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	Mean annual.	
														Years.	Fahr.
		°	°	°	°	°	°	°	°	°	°	°	°		°
Albany, N. Y	Dec. 22, 1873			46.3	43.6	47.0	48.1	48.7	46.4	50.4	51.4	51.0	49.2	10	48.2
Alpena, Mich	Sept. 10, 1872		39.7	41.2	37.2	40.9	43.8	45.0	41.8	42.2	42.1	42.7	38.7	11	41.8
Apache, Fort, Ariz	Oct. 9, 1877								53.4	50.8	52.4	51.3	52.2	5	52.0
Assinaboine, Fort, Mont	Oct. 6, 1879											42.7	39.2	2	41.0
Atlanta, Ga	Sept. 25, 1878								61.5	62.1	62.0	61.8	61.5	5	61.8
Atlantic City, N. J	Dec. 10, 1873			51.6	49.2	51.1	52.5	53.0	51.5	53.8	52.7	52.6	51.4	10	51.9
Augusta, Ga	Nov. 2, 1870	61.8	62.9	64.4	63.3	63.4	64.3	65.2	65.2	65.4	65.7	65.3	65.8	12	64.4
Baltimore, Md	Jan. 1, 1871	55.6	54.3	55.5	53.1	54.9	56.3	56.9	55.6	56.4	57.1	55.7	55.1	12	55.6
Barnegat City, N. J	Dec. 10, 1873			51.0	48.8	51.0	52.1	52.4	50.7	52.4	51.6	52.0	51.6	10	51.4
Bennett, Fort, Dak	Dec. 22, 1879										43.8	45.7	42.2	3	43.9
Benton, Fort, Mont	Oct. 11, 1879	42.4	42.5	43.8	42.1	(1)	(1)	(1)	(1)	40.3	43.6	44.8	43.0	8	42.8
Bismarck, Dak	Sept. 15, 1874				35.0	36.8	42.4	44.8	39.5	38.4	40.1	41.1	37.7	9	39.5
Block Island, R. I	Sept. 1, 1880										50.3	50.0	48.8	3	49.7
Boisé City, Idaho	July 1, 1877							52.4	51.4	48.9	50.0	48.6	(1)	5	50.3
Boston, Mass	Nov. 1, 1870	48.5	48.3	48.7	46.2	47.8	49.2	49.2	47.8	49.4	48.5	48.1	47.6	12	48.3
Brownsville, Tex	Aug. 25, 1875							72.7	73.7	72.6	72.5	73.8	72.7	6	73.0
Buffalo, N. Y	Nov. 1, 1870	47.4	46.0	46.2	42.7	45.8	47.8	48.8	46.4	47.5	47.8	47.0	44.9	12	46.6
Buford, Fort, Dak	Oct. 23, 1878								39.0	36.6	39.4	41.0	36.2	5	38.4
Cairo, Ill	June 1, 1871	56.2	56.8	58.4	55.7	57.1	58.5	60.1	59.6	59.0	59.6	59.2	57.4	12	58.1
Cape Henry, Va	Dec. 15, 1873			59.1	57.6	58.4	58.8	59.6	58.8	60.6	59.5	58.9	58.8	10	58.9
Cape May, N. J	May 24, 1871	51.1	51.7	52.2	50.2	53.6	54.8	56.0	54.2	55.6	54.7	55.2	53.8	12	53.6
Cape Mendocino, Cal	July 27, 1882												50.6	1	50.6
Cedar Keys, Fla	Nov. 7, 1879									70.9	70.5	71.1	72.4	4	71.2
Charleston, S. C	Jan. 5, 1871	64.4	64.6	65.7	64.8	65.5	66.1	66.5	66.7	67.2	66.8	67.1	66.6	12	66.0
Charlotte, N. C	Oct. 6, 1878								60.4	60.3	61.4	60.4	60.5	5	60.6
Chattanooga, Tenn	Jan. 8, 1879								60.7	60.3	60.8	60.4	60.8	5	60.6
Cheyenne, Wyo	Nov. 1, 1870	43.1	44.8	45.5	42.5	44.8	44.2	44.2	46.5	42.9	45.8	43.9	42.4	12	44.8
Chicago, Ill	Nov. 1, 1870	45.6	47.2	50.4	45.4	49.0	50.3	51.4	49.9	50.6	49.4	49.6	46.3	12	48.8
Chincoteague, Va	Mar. 16, 1880										54.7	55.2	54.6	3	54.8
Cincinnati, Ohio	Nov. 1, 1870	54.4	55.0	57.0	53.0	55.2	56.2	57.0	56.2	56.8	57.7	56.9	55.8	12	55.9
Cleveland, Ohio	Nov. 1, 1870	48.0	48.6	50.5	45.9	48.0	50.0	50.5	49.1	50.9	49.8	49.4	47.8	12	49.0
Coleman City, Tex	July 1, 1877								64.9	61.6	(1)	62.6	(1)	3	63.0
Columbus, Ohio	July 1, 1878								53.2	53.5	53.7	52.7	51.1	5	52.8
Concho, Fort, Tex	Oct. 10, 1875							63.7	66.3	62.8	63.9	63.5	63.3	6	63.8
Custer, Fort, Mont	Dec. 5, 1878									43.0	45.3	45.2	(1)	3	44.5
Davenport, Iowa	May 24, 1871	48.7	49.0	49.6	45.4	48.8	50.8	52.2	50.0	51.0	50.4	51.7	48.3	12	49.7

Davis, Fort, Tex	Dec. 24, 1877	....	....	....	....	....	....	....	62.0	58.0	(1)	59.3	59.9	4	59.8
Dayton, Wash	July 1, 1879	....	....	....	....	....	....	....	....	47.9	49.3	48.6	48.1	4	48.5
Deadwood, Dak	Dec. 25, 1877	....	....	....	....	....	....	....	....	40.8	(1)	42.9	40.5	3	41.4
Delaware Breakwater, Del	Jan. 28, 1880	....	....	....	....	....	....	....	....	....	54.4	54.0	53.3	3	53.9
Denver, Colo	Nov. 19, 1871	47.6	48.1	49.8	48.6	49.5	48.8	49.5	50.8	47.4	50.8	50.3	48.8	12	49.2
Des Moines, Iowa	Aug. 1, 1878	....	....	....	....	....	....	....	49.8	49.9	49.2	49.7	46.1	5	48.9
Detroit, Mich	Nov. 1, 1870	46.0	46.2	48.3	44.1	47.2	49.0	49.6	48.0	48.7	51.3	51.2	47.7	12	48.0
Dodge City, Kans	Sept. 15, 1874	....	....	....	52.4	53.2	53.2	54.4	54.3	52.0	53.0	53.6	51.0	9	53.0
Dubuque, Iowa	July 10, 1873	....	....	48.9	44.8	47.6	49.6	50.6	48.6	48.6	48.6	49.0	45.5	10	48.2
Duluth, Minn	Nov. 1, 1870	38.3	39.3	39.8	36.3	37.9	43.5	45.3	40.0	38.7	40.4	41.2	38.0	12	39.9
Eastport, Me	Apr. 1, 1873	....	....	41.1	38.6	40.8	42.6	43.0	40.6	42.3	42.1	41.5	40.6	10	41.3
Elliott, Fort, Tex	Nov. 29, 1879	....	....	....	....	....	....	....	....	54.4	54.9	54.8	54.3	4	54.6
El Paso, Tex	Nov. 5, 1877	....	....	....	....	....	....	....	66.3	63.0	62.9	61.6	62.6	5	63.3
Erie, Pa	May 25, 1873	....	....	50.1	46.4	49.0	50.3	51.8	49.7	50.4	50.0	49.5	47.5	10	49.5
Escanaba, Mich	May 24, 1871	39.3	39.2	40.4	36.1	39.8	42.5	44.6	40.9	41.3	41.1	42.3	37.9	12	40.5
Fort Smith, Ark	June 1, 1882	....	....	....	....	....	....	....	....	....	....	....	59.7	1	59.7
Galveston, Tex	Apr. 19, 1871	69.4	69.3	70.5	69.8	70.1	69.0	70.0	70.8	69.8	70.1	71.5	70.6	12	70.1
Grand Haven, Mich	May 24, 1871	44.4	45.2	47.5	43.8	46.9	48.9	50.1	47.8	48.3	48.1	48.2	44.7	12	47.0
Grant, Fort, Ariz	Nov. 1, 1875	....	....	....	....	....	....	....	63.2	59.1	59.8	58.6	59.0	5	59.9
Hatteras, N. C	Dec. 1, 1880	....	....	....	....	....	....	....	....	....	61.9	61.7	61.2	3	61.6
Helena, Mont	Oct. 15, 1879	....	....	....	....	....	....	....	....	....	43.8	43.8	42.7	3	43.4
Huron, Dak	July 1, 1881	....	....	....	....	....	....	....	....	....	....	43.8	40.7	2	42.2
Indianapolis, Ind	Feb. 10, 1871	51.4	51.9	54.6	50.2	52.9	54.8	55.0	53.8	53.9	54.7	53.8	51.8	12	53.2
Indianola, Tex	May 1, 1872	....	69.6	70.6	69.4	69.7	69.4	70.7	71.1	69.5	70.1	71.8	70.3	11	70.2
Jacksonville, Fla	Sept. 11, 1871	67.1	68.2	69.8	68.8	68.4	69.1	69.3	69.8	70.2	70.2	70.4	70.6	12	69.3
Keokuk, Iowa	July 16, 1871	51.4	50.5	52.6	48.5	51.0	52.9	55.0	52.9	53.5	52.6	52.6	49.6	12	51.9
Key West, Fla	Nov. 1, 1870	77.2	77.0	77.8	78.1	77.0	77.0	77.1	77.1	78.7	78.1	78.2	78.4	12	77.6
Kittyhawk, N. C	Jan. 15, 1875	....	....	....	....	59.8	59.3	60.1	59.3	61.3	59.7	59.5	59.5	8	59.8
Knoxville, Tenn	Jan. 1, 1871	55.1	56.5	57.8	55.5	55.7	57.0	57.6	58.8	58.5	58.7	58.2	57.9	12	57.3
La Crosse, Wis	Oct. 15, 1872	....	43.5	47.5	43.1	45.5	48.8	50.9	47.6	46.9	48.0	48.7	43.9	11	46.8
Leavenworth, Kans	May 21, 1871	52.0	51.7	54.2	51.0	53.2	53.8	55.4	54.5	54.1	54.1	54.7	51.7	12	53.4
Lewiston, Idaho	July 1, 1879	....	....	....	....	....	....	....	....	49.5	51.1	51.6	50.3	4	50.6
Little Rock, Ark	July 1, 1879	....	....	....	....	....	....	....	....	61.9	63.0	62.9	62.1	4	62.5
Los Angeles, Cal	July 1, 1877	....	....	....	....	....	....	60.7	60.6	58.4	61.1	60.1	61.6	6	60.4
Louisville, Ky	Sept. 11, 1871	54.8	55.7	57.8	54.5	56.2	57.5	57.8	57.2	57.4	58.2	57.9	56.4	12	56.8
Lynchburg, Va	May 24, 1871	54.5	55.0	56.6	55.3	57.1	59.2	58.7	58.4	58.2	59.8	57.7	57.5	12	57.3
Mackinaw City, Mich	Aug. 20, 1882	....	....	....	....	....	....	....	....	....	....	....	39.3	1	39.3
Macon, Fort, N. C	May 23, 1878	....	....	....	....	....	....	....	....	....	62.4	62.4	61.9	3	62.2
Maginnis, Fort, Mont	July 14, 1882	....	....	....	....	....	....	....	....	....	....	....	39.5	1	39.5
Marquette, Mich	May 1, 1871	39.2	39.2	41.2	37.0	40.8	44.4	46.5	42.5	42.0	41.0	42.3	38.1	12	41.2
Memphis, Tenn	Feb. 28, 1871	59.8	59.6	62.4	59.4	60.1	60.9	61.9	61.6	61.0	62.5	62.5	61.4	12	61.1
Milwaukee, Wis	Nov. 1, 1870	43.7	43.9	45.0	40.8	43.9	45.8	48.5	46.2	46.7	46.8	47.1	43.4	12	45.1
Mobile, Ala	Nov. 7, 1870	65.4	66.0	67.9	66.7	66.0	66.8	67.8	67.0	(1)	68.0	68.2	68.9	11	67.1
Montgomery, Ala	Nov. 9, 1870	....	64.2	66.1	65.2	64.6	65.3	65.8	65.6	65.8	66.1	66.0	66.7	11	65.6
Moorhead, Minn	Jan. 1, 1881	....	....	....	....	....	....	....	....	....	37.9	38.6	34.0	3	36.8
Mount Washington, N. H	Dec. 1, 1870	24.9	25.4	25.8	23.5	25.9	27.8	28.0	25.8	27.6	27.6	25.6	24.8	12	26.0
Nashville, Tenn	Nov. 1, 1870	57.7	59.1	61.5	58.4	58.9	59.5	60.0	60.5	60.2	61.2	60.8	59.1	12	59.7
New Haven, Conn	Dec. 10, 1872	....	47.8	49.2	48.2	50.7	52.4	52.9	50.7	51.6	49.8	48.7	47.5	11	50.0
New London, Conn	Jan. 10, 1871	47.8	47.4	49.1	47.3	49.5	51.0	51.3	49.7	50.8	50.3	49.8	48.8	12	49.4
New Orleans, La	Nov. 1, 1870	67.4	68.0	69.9	68.8	68.4	68.3	68.9	69.8	69.4	69.7	70.8	71.1	12	69.2

[1] Record incomplete.

Annual and mean annual temperature (in degrees Fahrenheit) at stations of the Signal Service, United States Army—Continued.

Stations.	Established.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	Mean annual.	
														Years.	Fahr.
		°	°	°	°	°	°	°	°	°	°	°	°		°
New York City	Nov. 1, 1870	50.6	50.2	51.4	48.6	50.5	52.6	52.9	51.3	52.2	52.2	51.5	50.6	12	51.2
Norfolk, Va	Jan. 1, 1871	58.0	58.1	58.7	57.6	59.0	58.9	59.8	59.2	60.5	59.9	59.8	59.9	12	59.2
North Platte, Nebr	Sept. 18, 1874				46.3	47.5	48.2	49.7	48.1	47.1	47.9	49.1	45.9	9	47.8
Olympia, Wash	July 1, 1877							50.8	49.0	47.7	49.7	48.9	49.0	6	49.2
Omaha, Nebr	Nov. 1, 1870	48.1	48.6	50.0	46.3	48.6	50.9	52.5	51.5	50.3	49.7	51.4	47.8	12	49.7
Oswego, N. Y	Nov. 1, 1870	46.1	46.3	46.9	44.2	47.2	49.0	51.2	48.3	49.1	48.2	47.9	45.5	12	47.5
Palestine, Tex	Dec. 3, 1881												65.7	1	65.7
Pensacola, Fla	Oct. 27, 1879									68.3	68.8	68.4	69.0	4	68.5
Philadelphia, Pa	Jan. 1, 1871	52.0	51.5	52.6	50.1	52.5	53.9	54.6	53.4	54.5	54.2	54.6	53.6	12	53.2
Pike's Peak, Colo	Nov. 1, 1873			18.9	18.2	19.0	18.4	19.4	21.9	17.9	20.7	18.8	18.7	10	19.2
Pittsburg, Pa	Nov. 1, 1870	50.0	50.4	51.7	48.8	51.5	52.8	52.8	52.1	53.4	54.0	52.8	51.9	12	51.8
Port Huron, Mich	July 25, 1874				41.7	44.9	46.8	47.9	45.8	46.9	45.8	45.7	42.7	9	45.2
Portland, Me	Jan. 15, 1871	43.6	43.7	44.9	44.1	48.0	48.3	49.1	47.1	48.7	46.4	48.0	46.4	12	46.7
Portland, Oreg	Nov. 1, 1871	51.7	52.6	53.6	53.3	53.1	53.9	53.8	52.4	50.4	52.2	51.5	51.7	12	52.5
Prescott, Ariz	Nov. 19, 1873							52.3	54.7	50.6	52.5	51.1	52.5	6	52.3
Provincetown, Mass	Feb. 15, 1882												47.9	1	47.9
Red Bluff, Cal	July 1, 1877							64.0	64.2	61.8	62.1	(1)	61.5	5	62.7
Rio Grande City, Tex	May 28, 1875								74.2	72.8	73.0	(1)	(1)	3	73.3
Rochester, N. Y	Nov. 1, 1870	44.7	45.1	46.7	43.9	46.8	48.6	49.6	47.4	48.7	48.6	46.7	(1)	11	47.0
Roseburg, Oreg	July 15, 1877							53.1	52.2	50.6	52.2	51.5	51.8	6	51.9
Sacramento, Cal	July 1, 1877							61.3	60.3	57.2	59.2	58.5	58.8	6	59.2
Saint Louis, Mo	Nov. 1, 1870	54.1	53.7	56.8	53.9	55.4	56.4	57.4	55.7	55.1	55.9	55.6	53.6	12	55.4
Saint Michael's, Fort, Alaska	June 28, 1874				26.2	24.3	25.2	25.6	26.4	23.2	28.3	26.1	28.3	9	25.9
Saint Paul, Minn	Nov. 1, 1870		41.6	43.3	39.8	42.3	47.5	48.2	45.5	44.0	45.2	45.6	40.9	11	44.0
Saint Vincent, Minn	Sept. 5, 1880										35.5	34.4	30.3	3	33.4
Salt Lake City, Utah	Mar. 19, 1874				52.4	51.2	51.4	51.9	53.0	48.6	51.8	49.2	50.8	9	51.1
San Diego, Cal	Nov. 1, 1871	60.4	60.6	59.6	61.6	61.0	62.1	60.6	60.1	58.5	60.4	59.8	61.2	12	60.5
Sandusky, Ohio	Aug. 2, 1877							52.0	50.8	51.4	51.3	50.7	(1)	5	51.2
Sandy Hook, N. J	Dec. 10, 1873			49.8	49.1	51.9	53.3	53.4	51.6	53.5	53.3	52.7	51.6	10	52.0
San Francisco, Cal	Mar. 8, 1871	56.1	55.9	55.7	55.6	56.3	57.3	56.5	56.1	54.2	55.8	54.4	54.7	12	55.7
Savannah, Ga	Jan. 1, 1871	64.3	65.0	66.5	65.8	66.6	67.0	67.8	67.4	68.0	67.8	68.1	68.3	12	66.9
Shaw, Fort, Mont	Apr. 1, 1880										42.1	42.5	40.6	3	41.7
Shreveport, La	Sept. 3, 1871	63.7	64.5	68.0	65.2	64.7	64.8	65.6	66.9	65.6	66.4	66.2	65.8	12	65.6
Sill, Fort, Ind. T	June 23, 1875						59.5	61.6	62.0	59.4	61.2	60.0	(1)	6	60.6
Sitka, Alaska	Mar. 30, 1881											43.2	44.3	2	43.8
Smithville, N. C	Oct. 15, 1875					63.1	63.2	63.7	63.1	65.0	63.4	63.2	63.1	8	63.5
Spokane Falls, Wash	Feb. 5, 1881											46.5	46.8	2	46.6
Springfield, Ill	July 1, 1879									54.1	53.8	53.9	51.0	4	53.2
Stockton, Fort, Tex	Feb. 26, 1876							62.9	65.7	61.3	62.7	61.5	62.3	6	62.7
Thomas, Camp, Ariz	Sept. 22, 1877										60.7	01.3	61.9	3	61.8
Toledo, Ohio	Nov. 1, 1870	48.1	49.3	49.8	46.7	50.2	52.1	52.8	51.2	51.9	51.8	51.5	48.9	12	50.3

Verde, Fort, Ariz	Nov. 9, 1874	....	....	....	....	....	62.7	(1)	62.2	58.4	60.3	59.2	(2)	5	60.6
Vicksburg, Miss	Sept. 10, 1871	65.1	65.8	66.0	64.6	64.3	64.9	66.0	66.3	65.2	66.8	66.9	66.4	12	65.7
Washington, City	Nov. 1, 1870	55.6	54.8	55.9	52.2	54.4	55.5	56.0	55.1	55.6	55.9	54.9	54.0	12	55.0
West Las Animas, Colo	Oct. 1, 1881	....	....	....	....	....	....	....	....	....	....	....	49.6	1	49.6
Wilmington, N. C	Jan. 1, 1871	62.4	63.0	63.6	61.5	61.6	62.4	62.2	62.6	63.6	64.2	64.2	64.0	12	63.0
Yankton, Dak	Apr. 1, 1873	....	....	46.7	41.2	43.5	46.7	48.2	47.3	46.5	45.4	47.4	44.0	10	45.7
Yuma, Ariz	Nov. 18, 1873	....	....	....	....	74.0	73.7	72.0	73.3	70.2	71.9	70.8	(1)	7	72.3

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[1] Record incomplete.

[2] Station closed.

NOTE.—Observations prior to August 25, 1872, were taken at 7.35 a. m., 4.35 p. m., and 11.35 p. m. (Washington time); from August 25, 1872, to November 1, 1879, at 7.35 a. m., 4.35 p. m., and 11.00 p. m. (Washington time); and from November 1, 1879, to December 31, 1888, at 7.00 m., 3.00 p. m., and 11.00 p. m. (Washington time).

APPENDIX 28.

Monthly and annual mean temperature (in degrees Fahrenheit) at stations of the Signal Service, United States Army, for the year ending June 30, 1884, deduced from observations taken at 7 a. m., 3 and 11 p. m., Washington time.

[The daily means are obtained by dividing the sum of the 7 a. m., 3 and 11 p. m. observations by three; the monthly means by dividing the sum of the daily means by the number of days in the month.]

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	72.8	69.9	61.2	50.9	44.0	31.0	22.6	33.0	35.8	47.8	59.1	72.5	50.1
Alpena, Mich	63.2	61.7	52.8	42.7	33.6	22.2	12.7	15.2	23.2	37.8	48.5	61.5	39.6
Apache, Fort, Ariz	70.3	69.4	63.8	50.6	41.1	38.9	34.9	40.2	42.8	47.5	55.6	68.9	51.6
Assinaboine, Fort, Mont	66.2	66.0	54.2	38.9	26.1	22.3	13.1	3.3	22.5	41.1	57.0	65.8	39.7
Atlanta, Ga	79.8	75.1	70.8	65.3	53.6	48.0	35.7	51.0	54.2	58.1	70.9	70.8	61.1
Atlantic City, N. J	73.0	70.5	65.1	55.6	45.9	37.2	29.2	37.6	38.6	47.0	58.7	66.4	52.1
Augusta, Ga	83.4	[1]79.9	73.8	68.2	57.4	53.2	43.4	56.5	59.6	62.1	74.0	74.2	65.5
Baltimore, Md	76.8	72.9	65.1	57.5	48.2	39.0	32.0	42.2	44.0	52.8	64.8	73.2	55.7
Barnegat City, N. J	72.9	70.4	64.4	55.4	46.3	37.2	28.9	37.8	39.0	46.9	58.7	68.2	52.0
Bennett, Fort, Dak	70.5	69.6	58.6	42.8	30.4	19.6	12.2	5.6	27.5	42.5	57.3	72.0	42.4
Benton, Fort, Mont	69.5	[2]70.2	58.2	41.1	30.7	28.0	18.9	8.9	34.6	[2]42.1	55.6	65.3	43.6
Bismarck, Dak	67.1	65.9	56.1	[2]40.4	[3]26.1	14.3	4.2	—0.1	19.7	38.7	55.4	69.4	38.1
Block Island, R. I	69.9	67.2	61.5	52.4	46.0	35.0	29.5	35.0	36.0	42.9	53.0	62.8	49.2
Boise City, Idaho	[3]73.2	73.2	62.0	44.5	39.3	(4)	28.0	30.7	43.5	52.0	61.1	67.1	....
Boston, Mass	71.3	67.6	59.3	47.4	42.5	28.7	28.8	31.0	33.5	42.7	53.8	66.0	47.3
Brownsville, Tex	83.0	83.6	77.7	78.5	69.2	61.9	53.1	64.8	69.6	71.8	76.7	79.8	72.5
Buffalo, N. Y	67.2	65.8	57.5	48.4	43.5	34.0	18.0	26.3	29.3	39.7	52.1	66.5	45.7
Buford, Fort, Dak	66.4	64.9	53.5	38.9	22.4	[6]9.9	6.3	0.1	19.6	38.9	[6]56.1	69.5	37.2
Cairo, Ill	77.7	74.8	68.0	60.8	50.0	42.1	27.9	42.0	47.6	56.2	66.4	73.7	57.2
Canby, Fort, Wash	....	(7)	[8]60.0	51.1	47.3	44.3	42.6	38.2	44.0	50.5	53.4	55.2	....
Cape Henry, Va	77.5	75.5	70.3	62.5	53.3	45.1	36.3	46.7	46.8	52.0	65.2	71.1	58.5
Cape May, N. J	[3]73.7	[3]71.6	[2]66.2	56.9	48.8	39.7	31.6	39.5	40.0	48.2	59.8	67.6	53.6
Cape Mendocino, Cal	52.0	53.6	59.7	52.5	50.4	49.4	48.1	45.7	47.5	49.0	52.0	54.6	51.2
Cedar Keys, Fla	83.8	83.7	79.7	76.3	65.8	62.5	51.6	63.4	66.7	69.0	77.0	78.2	71.5
Charleston, S. C	83.4	79.9	74.3	69.0	59.4	56.0	46.6	58.7	[1]59.8	63.3	[1]74.8	75.6	66.7
Charlotte, N. C	80.5	76.9	68.5	61.6	52.4	46.9	38.5	51.3	53.4	57.3	69.3	70.7	60.6
Chattanooga, Tenn	79.2	74.4	70.4	64.1	51.7	46.2	34.2	48.6	52.7	57.1	68.8	71.5	59.9
Cheyenne, Wyo	64.0	63.9	55.3	39.3	33.2	29.6	23.6	23.7	30.8	36.2	49.6	61.1	42.9
Chicago, Ill	71.0	68.3	60.7	51.8	41.5	30.1	19.2	27.7	34.2	44.3	56.7	[3]65.0	47.5
Chincoteague, Va	74.9	72.4	67.5	58.6	49.1	40.9	32.7	41.9	42.3	48.8	61.7	69.1	55.0
Cincinnati, Ohio	76.7	73.1	66.7	58.5	48.5	39.0	[1]26.7	41.2	45.2	52.9	64.1	74.6	55.6

Cleveland, Ohio	70.7	68.9	58.5	51.9	42.0	32.2	19.3	29.6	33.6	42.5	57.7	68.5	48.0
Columbus, Ohio	72.4	69.5	63.1	54.7	44.1	34.5	20.5	36.4	39.3	49.0	61.2	72.7	51.5
Concho, Fort, Tex	81.1	81.9	71.8	65.8	55.1	48.0	38.1	47.9	57.1	59.9	67.6	77.4	62.6
Custer, Fort, Mont	(⁵)	70.7	58.6	42.3	31.2	26.0	14.6	7.3	25.6	43.1	54.6	66.5	....
Davenport, Iowa	73.7	69.8	60.9	50.3	41.7	31.1	¹18.8	26.9	36.4	50.1	61.2	70.3	49.3
Davis, Fort, Tex	73.8	72.9	67.0	63.7	51.6	46.7	39.3	51.6	54.5	55.5	64.1	72.0	59.3
Dayton, Wash	69.9	68.2	59.9	45.9	43.0	32.8	30.5	24.8	39.9	50.7	59.7	64.0	49.1
Deadwood, Dak	63.1	63.6	53.9	⁸40.1	34.2	26.5	21.3	15.1	27.5	36.1	49.1	63.4	41.0
Delaware Breakwater, Del	73.6	71.7	68.7	58.3	48.3	39.6	31.1	39.9	40.1	47.2	60.0	67.1	53.6
Denver, Colo	71.2	71.2	61.7	46.7	42.9	32.5	31.5	29.9	39.0	43.5	54.3	67.0	49.3
Des Moines, Iowa	73.6	69.7	59.4	48.7	39.0	27.3	16.0	21.5	34.6	48.7	59.8	70.0	47.4
Detroit, Mich	71.0	67.7	⁸59.7	50.8	43.8	33.5	21.3	30.6	35.6	45.5	58.9	70.4	49.1
Dodge City, Kans	76.2	71.7	64.1	50.8	41.8	34.8	25.6	28.5	41.8	49.1	59.5	71.2	51.3
Dubuque, Iowa	72.5	68.5	58.8	48.7	38.5	27.0	14.1	22.2	32.2	48.4	60.0	68.6	46.6
Duluth, Minn	66.0	62.8	54.6	44.1	29.7	15.7	5.3	7.6	22.1	36.0	48.9	57.7	37.5
Eastport, Me	60.2	62.2	55.3	44.7	38.8	23.4	17.6	24.7	28.2	39.9	46.5	57.4	41.6
Elliott, Fort, Tex	76.1	74.5	60.1	55.2	46.5	38.8	30.7	35.2	45.5	51.9	61.5	⁶72.1	54.5
El Paso, Tex	80.6	79.3	70.7	61.1	50.2	45.7	39.9	²50.6	54.5	59.0	69.0	78.4	61.6
Erie, Pa	69.9	67.4	58.8	52.1	43.8	33.3	20.7	30.1	33.2	42.3	56.9	68.2	48.1
Escanaba, Mich	63.8	61.9	53.3	43.8	32.6	20.1	8.6	10.0	21.1	36.3	49.1	62.6	38.6
Fort Smith, Ark	79.6	77.8	70.4	63.8	52.8	44.1	30.5	42.0	52.1	57.6	68.2	75.3	59.5
Galveston, Tex	83.9	84.6	79.3	76.9	65.0	60.2	46.7	60.4	64.8	67.2	75.9	81.4	70.5
Grand Haven, Mich	67.4	64.6	57.0	47.6	40.8	30.6	20.9	24.8	32.0	43.7	55.1	⁸68.0	46.0
Grant, Fort, Ariz	75.1	73.8	71.7	58.2	50.0	45.1	41.4	45.5	48.2	54.3	64.8	74.5	58.5
Hatteras, N. C	79.6	77.0	73.2	64.9	56.1	49.3	42.2	54.0	53.3	54.8	67.5	72.4	62.0
Helena, Mont	68.7	67.9	58.8	38.3	32.4	¹27.8	(⁴)	14.6	29.1	41.6	53.9	62.9	....
Huron, Dak	68.7	66.7	56.2	43.9	31.4	18.3	8.9	5.5	25.7	41.8	56.1	69.4	41.0
Indianapolis, Ind	75.1	70.4	63.2	54.8	45.0	34.4	21.6	34.7	41.1	50.2	62.1	73.2	52.2
Indianola, Tex	82.5	83.6	78.2	76.8	66.3	59.5	46.7	60.2	65.7	67.5	75.4	80.2	70.2
Jacksonville, Fla	84.1	80.8	76.5	74.2	63.3	60.5	51.7	62.1	66.3	68.7	76.5	76.9	70.1
Keokuk, Iowa	76.0	71.2	62.7	51.5	42.8	31.8	18.7	27.5	37.3	50.6	62.3	71.5	50.3
Key West, Fla	84.8	84.3	82.9	79.5	75.0	71.5	68.3	72.5	74.6	⁹76.2	80.9	81.7	77.7
Kitty Hawk, N. C	79.4	75.6	71.6	63.8	54.0	47.0	38.4	49.7	49.3	51.7	65.8	71.1	59.8
Knoxville, Tenn	75.9	73.1	69.4	62.6	48.2	41.1	29.8	46.6	49.1	55.1	66.8	71.8	57.5
La Crosse, Wis	72.4	68.1	57.7	46.9	37.1	24.3	11.4	17.9	29.5	⁸46.5	60.4	70.4	45.2
Leavenworth, Kans	76.8	72.7	63.4	53.0	44.0	35.1	21.1	27.9	41.3	50.8	62.0	72.1	51.7
Lewiston, Idaho	75.3	¹72.2	59.8	47.8	42.4	34.3	31.9	26.1	42.8	53.1	63.3	67.9	51.4
Little Rock, Ark	80.2	77.2	70.4	¹66.5	55.4	48.5	35.7	47.6	54.2	59.8	68.9	76.0	61.7
Los Angeles, Cal	69.8	69.8	71.9	61.0	59.2	56.3	53.9	55.1	54.8	57.2	61.6	65.6	61.4
Louisville, Ky	76.9	72.9	67.9	58.6	49.4	41.1	27.4	42.6	46.7	54.7	65.8	74.2	56.5
Lynchburg, Va	79.0	74.6	67.0	58.9	49.1	41.4	33.2	45.6	47.7	54.1	67.4	⁹71.6	57.5
Mackinaw City, Mich	62.5	62.0	54.2	44.7	35.6	24.9	13.6	13.1	23.0	37.3	47.7	60.9	40.0
Macon, Fort, N. C	79.8	77.4	72.8	65.2	55.6	50.0	41.3	52.9	54.8	57.2	69.3	73.2	62.5
Maginnis, Fort, Mont	62.5	63.3	53.1	35.8	29.2	27.2	21.1	9.3	26.5	36.6	50.6	60.3	39.5
Marquette, Mich	62.0	62.0	53.9	43.0	32.4	21.1	10.9	10.1	22.7	35.6	47.2	59.7	38.4
Memphis, Tenn	80.7	76.8	70.2	65.1	54.1	¹46.9	33.0	47.8	52.5	59.5	¹69.6	75.5	61.0
Milwaukee, Wis	67.6	65.9	56.9	48.8	38.8	26.4	13.6	22.1	29.5	40.9	53.5	60.3	43.6
Mobile, Ala	83.6	82.0	77.9	73.3	60.5	56.4	43.5	57.3	62.2	66.2	74.6	77.8	67.9

[1] For 30 days only.
[2] For 28 days only.
[3] For 16 days only.
[4] Record incomplete.
[5] For 27 days only.
[6] For 26 days only.
[7] Observations began September 1, 1883.
[8] For 29 days only.
[9] Observations re-commenced July 21, 1883.

Monthly and annual mean temperature (in degrees Fahrenheit) at stations of Signal Service, United States Army, for year ending June 30, 1884, &c.—Cont'd.

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Montgomery, Ala	82.4	80.3	76.0	71.2	58.0	52.6	40.5	55.4	59.9	63.4	74.6	75.6	65.9
Moorhead, Minn	[1]65.9	63.2	53.4	40.0	23.2	[1]6.3	−3.5	−3.9	14.7	38.9	54.4	63.3	35.2
Mount Washington, N. H	46.4	43.8	38.9	[1]29.8	19.5	9.1	5.2	14.1	12.2	25.4	32.0	49.0	27.1
Nashville, Tenn	76.6	74.1	68.9	62.9	50.9	42.8	30.1	46.0	49.1	56.3	68.3	73.1	58.8
New Haven, Conn	71.1	67.3	60.1	49.0	42.1	29.7	22.2	31.7	33.6	44.9	55.9	66.8	48.0
New London, Conn	71.2	67.9	61.1	50.9	44.1	31.5	26.1	33.6	35.8	45.4	55.8	65.1	49.0
New Orléans, La	83.5	83.3	79.4	75.4	63.5	60.3	47.1	60.7	64.8	68.2	76.4	79.4	70.2
New York City	73.3	70.8	63.1	53.7	45.0	33.7	26.2	36.1	37.5	47.6	58.8	68.7	51.1
Norfolk, Va	79.6	76.2	70.5	62.2	53.7	46.4	33.2	50.1	50.3	54.5	63.1	73.4	60.3
North Platte, Nebr	72.9	69.7	[2]60.0	44.7	33.0	[2]29.5	19.4	19.7	34.0	44.5	57.9	70.8	46.8
Olympia, Wash	61.5	61.3	[3]56.6	48.7	45.7	39.8	39.1	34.0	42.4	51.0	56.1	58.5	49.6
Omaha, Nebr	75.7	71.3	60.8	49.4	39.2	28.6	17.0	19.4	35.3	47.5	61.6	72.3	48.2
Oswego, N. Y	67.2	65.7	57.5	49.5	42.1	30.2	21.9	29.2	31.5	40.9	58.2	65.6	46.2
Palestine, Tex	81.6	81.1	74.9	[4]60.7	50.7	53.8	40.9	52.9	60.4	63.1	68.5	77.3	65.3
Pensacola, Fla	82.3	81.0	77.2	73.2	61.5	57.9	46.4	58.9	63.1	66.3	74.2	76.6	68.2
Philadelphia, Pa	76.1	71.9	64.5	55.3	47.4	37.1	29.5	40.3	41.5	48.7	61.3	70.5	53.7
Pike's Peak, Colo	39.1	38.8	30.3	16.4	12.8	8.1	2.4	2.6	4.9	8.5	20.4	30.4	18.0
Pittsburg, Pa	72.8	69.4	62.8	55.3	46.6	36.7	24.9	39.4	40.2	49.6	62.4	72.7	52.7
Port Huron, Mich	65.9	64.8	56.5	47.0	38.8	27.1	15.6	29.5	28.9	39.2	53.3	65.4	43.8
Portland, Me	69.8	67.9	59.2	48.2	42.0	27.7	22.4	29.7	33.7	45.7	58.9	66.8	47.2
Portland, Oreg	69.9	62.8	61.2	50.8	46.5	[1]41.8	33.7	36.0	45.4	54.0	59.8	62.7	52.2
Prescott, Ariz	70.4	70.1	64.5	49.9	42.5	40.1	37.0	38.5	40.8	45.4	54.7	63.8	51.4
Provincetown, Mass	69.5	68.0	60.8	50.1	43.7	32.9	28.5	34.1	34.6	([5])	....	....	....
Red Bluff, Cal	84.9	79.9	75.4	57.7	50.6	44.4	46.2	45.9	51.6	56.8	68.0	69.6	60.9
Rio Grande City, Tex	....	....	....	[6]79.1	68.3	61.2	52.1	66.5	72.2	[7]76.1	80.1	84.5	....
Rochester, N. Y	....	....	....	[8]47.7	40.6	28.2	18.3	26.4	30.4	41.1	54.2	67.0	....
Roseberg, Oreg	67.0	63.8	60.3	49.9	45.4	40.0	39.1	38.4	45.7	51.4	58.6	61.0	51.7
Sacramento, Cal	78.1	[1]71.4	71.6	58.2	[2]50.5	44.2	46.6	[3]46.9	[1]52.9	56.7	64.0	[2]65.8	58.5
Saint Louis, Mo	76.1	72.8	66.9	55.5	49.6	39.5	25.8	35.5	43.6	53.4	64.5	72.8	54.7
Saint Michael's, Fort, Alaska	51.6	49.8	44.5	33.4	12.9	4.7	3.1	11.9	12.7	23.0	34.6	47.4	27.6
Saint Paul, Minn	70.2	66.5	56.5	45.2	32.8	19.8	7.9	13.3	28.2	46.4	59.0	69.7	43.0
Saint Vincent, Minn	62.0	60.3	50.7	37.2	18.5	1.1	−7.9	−8.0	10.7	35.6	52.7	66.2	31.6
Salt Lake City, Utah	75.9	76.4	69.3	46.1	39.0	32.9	23.1	31.3	40.6	48.0	57.7	68.7	51.2
San Diego, Cal	68.7	68.9	69.7	61.7	58.7	57.5	55.0	55.9	56.5	57.6	61.4	64.4	61.3
Sandusky, Ohio	([9])	69.4	61.2	52.5	44.1	33.3	29.8	30.9	34.9	44.9	59.6	69.9	....
Sandy Hook, N. J	74.8	72.2	64.3	55.2	46.0	35.4	27.7	36.8	38.0	47.2	58.9	68.4	52.0

Sanford, Fla	83.5	80.9	77.5	75.3	67.3	62.5	55.6	65.3	68.4	69.7	76.9	76.8	71.6
San Francisco, Cal	58.8	57.9	62.1	57.1	53.5	50.2	50.0	50.0	54.0	55.0	58.2	[2]59.0	55.5
Savannah, Ga	84.4	80.8	74.8	70.0	59.6	57.1	[1]46.6	58.3	61.7	65.8	76.1	[7]75.6	67.5
Shaw, Fort, Mont	62.1	63.4	53.9	36.4	30.0	28.6	21.9	9.5	28.0	40.4	52.9	63.0	40.8
Shreveport, La	83.9	81.6	74.5	70.9	57.9	52.3	38.9	53.7	59.5	62.8	71.6	79.4	65.6
Sitka, Alaska	52.2	53.6	53.2	45.5	33.4	36.4	38.8	31.7	37.5	44.8	45.9	51.4	43.7
Smithville, N. C	81.5	78.1	72.4	65.7	55.8	51.7	43.2	54.8	56.2	59.4	71.5	74.1	63.7
Spokane Falls, Wash	71.1	68.8	57.7	44.8	39.0	29.5	[10]24.4	21.3	35.9	50.2	59.8	65.7	47.3
Springfield, Ill	74.9	70.5	63.2	'53.2	44.3	33.8	20.8	32.1	40.0	51.8	62.2	71.3	51.5
Stockton, Fort, Tex	79.0	79.7	70.4	65.0	52.9	48.3	39.8	51.8	58.5	59.5	68.7	77.8	62.6
Tatoosh Island, Wash	....	....	....	[11]48.1	44.5	42.8	41.5	36.6	42.7	49.2	50.9	53.3	....
Thomas, Camp, Ariz	82.3	81.4	75.7	58.9	48.6	45.5	40.7	47.5	51.9	56.5	66.7	77.0	61.1
Toledo, Ohio	78.5	69.2	60.6	51.8	44.2	32.7	20.0	29.9	35.2	45.7	59.8	70.7	40.4
Unalashka, Alaska	49.9	50.4	46.0	43.4	36.3	30.6	33.6	36.5	33.7	36.5	39.2	45.7	40.2
Vicksburg, Miss	81.8	80.3	75.0	71.3	58.7	54.3	40.8	56.6	60.0	63.7	71.8	77.2	66.0
Washington City	76.8	72.1	65.1	56.9	47.2	36.9	29.4	40.9	42.2	50.9	64.4	72.5	54.6
West Las Animas, Colo	76.2	73.3	63.5	49.4	39.1	32.7	23.4	24.5	39.0	46.2	56.3	68.1	49.3
Wilmington, N. C	81.5	78.3	72.1	66.0	57.0	52.8	44.3	56.5	58.1	60.5	71.5	73.9	64.4
Yankton, Dak	71.9	70.6	59.0	46.0	34.8	24.1	18.5	12.1	29.9	43.5	59.6	71.7	44.7
Yuma, Ariz	92.1	91.0	85.7	66.7	[3]61.4	([12])	54.6	57.3	60.9	[2]67.4	75.3	81.7	....

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[1] For 30 days only.
[2] For 29 days only.
[3] For 28 days only.
[4] For 25 days only.
[5] Station closed April 1, 1884.
[6] Observations recommenced October 1, 1883.
[7] For 27 days only.
[8] Observations recommenced October 10, 1883.
[9] Observations recommenced July 20, 1883.
[10] For 26 days only.
[11] Observations commenced October 1, 1883.
[12] No record.

APPENDIX 29.

Table of mean temperatures (in degrees Fahrenheit) for each month and the year at the stations of observation of the Signal Service, United States Army, computed from the three telegraphic observations, and from the opening of each station to and including December, 1883.

[The daily mean is obtained by dividing the sum of the three telegraphic observations by three; the monthly mean, by dividing the sum of the daily means by the number of days in the month.]

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	Dec. 22, 1873	23.1	25.2	32.6	44.9	59.2	68.2	72.5	70.7	63.0	51.2	39.0	28.6	48.2
Alpena, Mich	Sept. 10, 1872	18.7	19.2	24.4	36.1	48.9	59.3	65.8	64.7	56.7	45.2	32.2	23.6	41.3
Apache, Fort, Ariz	Oct. 8, 1877	33.5	37.9	45.1	50.3	57.2	67.5	72.0	70.0	63.3	52.6	40.4	36.5	52.0
Assinaboine, Fort, Mont	Oct. 6, 1879	9.6	16.8	30.6	41.5	51.0	62.6	67.0	65.9	53.9	39.0	26.2	20.8	41.0
Atlanta, Ga	Sept. 25, 1878	45.8	48.5	53.6	61.3	68.9	76.3	78.9	75.5	70.9	63.4	51.4	45.4	61.8
Atlantic City, N. J	Dec. 10, 1873	32.2	33.7	38.5	46.8	57.2	66.9	72.4	72.0	67.1	57.0	44.2	35.5	51.9
Augusta, Ga	Nov. 2, 1870	47.8	50.8	56.0	64.0	72.5	79.2	82.2	79.7	74.8	64.4	53.7	47.6	64.4
Baltimore, Md	Jan. 1, 1871	34.6	37.2	42.2	52.9	64.6	74.0	78.6	75.8	67.8	57.7	45.1	37.0	55.6
Barnegat City, N. J	Dec. 10, 1878	31.5	32.7	37.9	45.6	56.9	66.7	72.4	71.6	66.5	56.2	43.7	34.7	51.4
Behring's Island, Behring Sea	May 22, 1882	25.5	28.7	25.2	28.6	35.3	42.2	47.0	53.0	47.8	38.4	30.0	27.9	35.5
Bennett, Fort, Dak	Dec. 22, 1879	9.8	19.7	28.7	43.1	56.8	66.9	71.3	72.4	59.6	45.2	28.0	20.5	43.9
Benton, Fort, Mont	Oct. 11, 1879	12.5	20.6	29.4	42.9	54.6	63.0	69.8	68.4	56.5	43.9	26.2	21.9	42.8
Bismarck, Dak	Sept. 15, 1874	6.0	12.6	21.9	40.1	54.9	63.2	69.8	68.0	55.8	43.0	24.7	14.2	39.5
Block Island, R. I	Sept. 1, 1880	30.3	32.7	35.8	42.8	51.5	62.5	69.3	68.7	64.5	55.4	44.8	35.8	49.7
Boisé City, Idaho	July 1, 1877	29.2	33.7	43.3	49.5	56.1	66.1	73.0	71.9	60.7	47.2	37.6	32.2	50.3
Boston, Mass	Nov. 1, 1870	26.4	28.1	34.3	44.0	56.5	66.2	71.6	69.5	62.1	52.0	39.2	29.8	48.3
Brownsville, Tex	Aug. 25, 1875	59.3	62.1	69.0	74.8	79.7	83.5	84.4	83.3	79.6	75.8	65.4	60.4	73.0
Buffalo, N. Y	Nov. 1, 1870	25.1	25.3	30.8	41.4	53.8	64.6	70.0	69.4	61.9	50.8	37.3	29.1	46.6
Buford, Fort, Dak	Oct. 23, 1878	7.0	11.1	22.8	40.9	53.4	62.9	67.4	66.7	54.3	41.6	24.0	9.3	38.4
Cairo, Ill	June 1, 1871	36.1	40.7	47.5	58.5	68.2	75.6	79.6	78.0	69.2	59.6	45.8	38.4	58.1
Cape Henry, Va	Dec. 15, 1873	40.8	42.8	47.0	54.1	64.1	73.6	78.2	76.3	71.9	63.0	51.6	43.4	58.9
Cape May, N. J	May 24, 1871	34.2	35.4	40.2	48.1	58.7	68.3	73.6	73.2	67.9	58.8	46.2	37.4	53.6
Cape Mendocino, Cal	July 27, 1882	45.0	43.5	49.8	46.7	50.0	54.5	52.0	54.2	57.9	52.8	50.2	49.4	50.6
Cedar Keys, Fla	Nov. 7, 1879	59.8	62.1	63.9	70.9	75.7	81.3	82.8	81.8	79.4	74.1	63.6	59.5	71.2
Charleston, S. C	Jan. 5, 1871	49.6	52.6	57.7	64.5	72.5	79.8	82.9	80.8	76.0	66.9	57.1	50.9	66.0
Charlotte, N. C	Oct. 6, 1878	42.0	46.2	50.6	59.1	68.9	76.9	79.7	76.4	70.9	63.0	49.6	42.8	60.6
Chattanooga, Tenn	Jan. 8, 1879	44.0	46.2	51.7	60.2	68.5	75.7	78.5	75.6	69.9	63.3	49.8	43.7	60.6
Cheyenne, Wyo	Nov. 1, 1870	25.1	28.2	33.4	39.7	50.9	61.5	67.1	65.4	55.4	43.9	33.1	27.5	44.3
Chicago, Ill	Nov. 1, 1870	25.6	29.1	35.2	45.9	56.9	65.6	72.4	71.9	63.6	52.5	38.2	28.8	48.8
Chincoteague, Va	Mar. 16, 1880	33.7	38.3	41.1	49.5	59.8	69.6	74.7	73.0	70.2	61.0	47.6	38.5	54.8
Cincinnati, Ohio	Nov. 1, 1870	34.5	37.8	43.6	54.6	65.7	74.2	78.4	75.8	67.8	57.6	44.4	36.7	55.9
Cleveland, Ohio	Nov. 1, 1870	26.9	28.4	34.1	45.2	58.2	67.6	71.9	70.5	63.4	53.1	39.1	29.9	49.0
Columbus, Ohio	July 1, 1878	30.5	34.4	39.6	50.3	63.6	70.6	75.8	72.5	65.5	56.2	41.5	32.3	52.8

Concho, Fort, Texas	Oct. 10, 1875	43.9	48.4	58.3	65.4	73.6	80.3	82.1	79.4	72.6	65.1	51.2	46.1	63.8
Custer, Fort, Mont	Dec. 5, 1878	18.8	24.8	33.7	44.3	54.5	63.8	70.7	70.6	58.1	45.2	30.6	20.6	44.5
Davenport, Iowa	May 24, 1871	22.0	27.7	35.2	49.0	61.6	70.5	75.3	73.5	63.9	52.5	37.0	27.6	49.7
Davis, Fort, Tex	Dec. 24, 1877	44.5	47.8	54.8	61.4	69.3	75.3	75.2	71.2	66.5	61.3	49.9	44.4	59.8
Dayton, Wash	July 1, 1879	31.0	30.2	43.0	48.4	55.0	62.7	68.0	65.8	59.1	47.4	36.8	33.4	48.5
Deadwood, Dak	Dec. 1, 1877	22.3	25.4	32.4	40.0	49.2	59.9	64.3	66.4	53.5	41.7	31.4	23.1	41.4
Delaware Breakwater, Del	Jan. 28, 1880	32.5	33.3	40.4	48.3	59.7	68.5	73.5	72.3	69.8	60.7	47.4	37.8	53.9
Denver, Colo	Nov. 19, 1871	27.2	32.1	39.8	46.8	56.6	66.8	72.0	70.5	60.8	49.9	37.2	30.6	49.2
Des Moines, Iowa	Aug. 1, 1878	20.9	26.5	35.3	49.4	61.5	69.5	73.8	73.7	63.2	52.9	37.2	24.5	48.9
Detroit, Mich	Nov. 1, 1870	24.8	27.0	32.8	44.7	57.8	67.2	71.6	70.3	62.8	51.7	37.5	28.6	48.0
Dodge City, Kans	Sept. 15, 1874	26.7	33.8	42.1	53.2	63.4	73.1	77.4	75.4	66.9	55.0	38.5	31.6	53.0
Dubuque, Iowa	July 10, 1873	19.7	25.3	33.4	47.8	61.2	68.6	74.6	72.4	62.8	51.2	35.1	25.8	48.2
Duluth, Minn	Nov. 1, 1870	11.8	17.7	24.7	38.3	48.8	58.4	66.8	66.0	56.2	44.9	29.0	16.8	39.9
Eastport, Me	Apr. 1, 1873	19.7	22.4	28.6	37.7	47.4	55.1	60.6	60.8	55.6	47.2	35.3	24.9	41.3
Elliott, Fort, Tex	Nov. 29, 1879	32.0	35.6	45.7	56.4	63.5	73.5	75.0	74.0	66.7	56.9	40.1	35.3	54.6
El Paso, Tex	Nov. 5, 1877	46.0	50.3	57.2	63.8	72.9	81.3	81.6	78.7	72.4	63.8	50.5	46.2	63.3
Erie, Pa	May 25, 1873	28.2	28.8	36.7	43.8	57.6	67.6	72.4	70.7	63.8	53.4	40.5	32.5	49.5
Escanaba, Mich	May 24, 1871	15.1	16.9	22.6	35.6	49.4	60.5	66.8	65.2	56.2	45.0	31.1	20.7	40.5
Fort Smith, Ark	June 1, 1882	33.5	39.7	49.3	61.2	67.7	77.5	78.8	77.0	70.2	64.6	52.0	42.2	59.7
Galveston, Tex	Apr. 19, 1871	53.2	57.1	63.8	69.5	76.4	82.5	84.4	83.6	79.3	72.6	61.9	56.3	70.1
Grand Haven, Mich	May 24, 1871	25.5	26.4	31.2	43.5	55.5	64.4	69.5	68.5	60.6	50.4	37.2	29.3	47.0
Grant, Fort, Ariz	Nov. 1, 1875	42.9	45.8	52.5	58.2	67.0	76.4	77.2	74.5	71.0	61.4	49.2	45.1	59.9
Hatteras, N. C	Dec. 1, 1880	43.5	47.0	48.9	55.4	65.6	74.9	78.8	77.9	75.3	67.6	56.1	46.6	61.6
Helena, Mont	Oct. 15, 1879	16.1	21.4	34.9	41.3	51.0	60.6	67.6	67.3	57.6	41.0	27.8	23.7	43.4
Huron, Dak	July 1, 1881	10.2	18.8	28.8	44.4	51.1	64.7	68.7	69.4	57.4	45.9	30.2	20.9	42.2
Indianapolis, Ind	Feb. 10, 1871	30.0	33.7	40.8	52.7	64.8	72.7	76.6	74.3	65.4	55.2	40.7	32.7	53.2
Indianola, Tex	May 1, 1872	53.3	57.8	65.0	70.0	76.3	82.1	83.7	82.8	79.2	73.0	62.0	56.3	70.2
Jacksonville, Fla	Sept. 11, 1871	56.2	58.2	62.7	69.0	75.3	80.9	82.7	81.0	77.8	70.0	61.7	55.8	69.3
Keokuk, Iowa	July 16, 1871	25.2	30.8	38.0	51.3	63.5	72.6	77.6	75.6	65.9	54.6	38.4	29.1	51.9
Key West, Fla	Nov. 1, 1870	70.3	71.9	73.6	77.0	79.9	83.3	84.0	84.3	82.9	79.0	74.7	70.2	77.6
Kittyhawk, N. C	Jan. 15, 1875	42.6	43.7	48.0	54.4	63.7	73.4	78.7	76.8	72.5	63.7	52.9	44.7	59.8
Knoxville, Tenn	Jan. 1, 1871	38.2	42.1	47.8	57.4	66.6	73.5	76.7	74.8	68.2	58.0	45.9	39.0	57.8
La Crosse, Wis	Oct. 15, 1872	16.6	22.9	31.7	46.7	60.5	68.7	73.5	71.4	61.0	49.9	33.4	22.9	46.8
Leavenworth, Kans	May 21, 1871	26.5	32.8	40.8	53.5	65.1	74.0	77.9	76.6	66.8	55.5	37.6	30.7	53.4
Lewiston, Idaho	July 1, 1879	31.6	31.5	43.4	50.3	57.4	66.6	73.6	71.6	60.5	48.6	36.8	33.8	50.6
Little Rock, Ark	July 1, 1879	44.2	48.1	54.0	63.4	70.3	78.4	80.3	78.2	71.4	65.4	51.4	46.1	62.5
Los Angeles, Cal	July 1, 1877	52.2	53.5	55.6	57.9	61.8	65.5	68.1	69.3	67.8	62.5	57.9	55.0	60.4
Louisville, Ky	Sept. 11, 1871	35.3	39.0	44.4	55.6	67.2	74.9	79.1	76.4	68.6	58.2	44.9	37.7	56.8
Lynchburg, Va	May 24, 1871	37.1	40.5	45.8	56.0	66.5	74.7	78.9	75.8	68.6	58.2	45.8	38.6	57.8
Mackinaw City, Mich	Aug. 20, 1882	16.0	15.0	17.5	35.9	44.7	58.9	62.5	62.0	56.4	48.4	36.4	25.7	39.3
Macon, Fort, N. C	May 23, 1878	44.7	48.8	50.2	57.0	67.5	75.7	78.7	78.1	74.8	67.5	55.4	48.8	62.2
Maginnis, Fort, Mont	July 14, 1882	13.7	17.8	31.2	38.5	44.6	58.4	63.0	64.8	53.7	37.8	30.7	27.3	39.5
Marquette, Mich	May 1, 1871	17.7	19.2	24.3	37.1	49.6	58.9	65.6	65.1	56.4	45.7	31.2	22.3	41.2
Memphis, Tenn	Feb. 28, 1871	41.4	45.0	52.0	61.2	70.9	78.3	81.1	79.2	71.0	61.6	49.8	42.4	61.1
Milwaukee, Wis	Nov. 1, 1870	20.9	24.7	30.7	42.1	53.5	63.3	69.1	69.0	60.7	48.4	34.9	24.5	45.1
Mobile, Ala	Nov. 7, 1870	51.2	54.9	60.0	67.1	74.4	80.9	82.3	80.9	76.7	68.0	58.2	52.0	67.1
Montgomery, Ala	Nov. 9, 1870	49.7	52.8	57.8	64.8	73.2	79.7	82.5	80.3	75.2	65.7	54.8	49.0	65.6
Moorhead, Minn	Jan. 1, 1881	−2.4	8.8	17.4	37.5	53.0	63.3	67.3	66.8	54.7	42.0	23.0	10.9	36.8
Mount Washington, N. H	Dec. 1, 1870	5.3	6.1	10.4	20.2	33.6	43.5	47.8	47.3	40.6	30.4	16.4	8.9	26.0
Nashville, Tenn	Nov. 1, 1870	39.6	43.4	49.8	59.9	69.7	77.4	80.3	78.4	70.8	60.5	47.8	41.1	59.7
New Haven, Conn	Dec. 10, 1872	27.9	29.7	35.6	45.7	58.3	67.8	73.1	70.5	64.2	53.6	40.7	31.1	50.0
New London, Conn	Jan. 10, 1871	28.7	29.6	35.4	45.1	56.4	65.8	71.5	70.0	63.8	53.6	40.8	31.7	49.4

Table of mean temperatures (in degrees Fahrenheit) for each month and the year at the stations of observation of the Signal Service, &c.—Continued.

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		°	°	°	°	°	°	°	°	°	°	°	°	°
New Orleans, La	Nov. 1, 1870	54.7	58.3	63.0	68.7	75.0	81.1	82.6	82.0	77.8	70.5	61.0	55.1	69.2
New York City	Nov. 1, 1870	30.2	31.4	36.8	47.0	59.1	68.7	73.7	72.3	65.3	55.6	42.6	33.0	51.2
Norfolk, Va	Jan. 1, 1871	40.9	42.9	48.0	58.4	66.6	75.7	79.7	77.1	70.8	61.0	49.6	42.2	59.2
North Platte, Nebr	Sept. 18, 1874	20.6	27.2	35.8	47.3	58.5	68.0	73.5	72.4	61.4	49.2	34.1	26.0	47.8
Olympia, Wash	July 1, 1877	37.8	39.2	44.4	47.6	52.8	58.5	61.4	61.6	55.8	48.6	43.4	40.8	49.2
Omaha, Nebr	Nov. 1, 1870	21.3	27.6	35.7	50.0	62.4	71.6	76.2	74.7	63.3	52.5	35.6	25.2	49.7
Oswego, N. Y	Nov. 1, 1870	26.1	26.4	32.1	42.8	54.7	64.4	70.5	69.8	62.8	51.6	38.7	29.9	47.5
Palestine, Tex	Dec. 3, 1881	43.2	54.6	61.0	66.8	71.2	79.3	80.6	79.4	73.9	69.6	57.8	52.0	65.7
Pensacola, Fla	Oct. 27, 1879	56.0	58.2	61.4	68.3	73.9	80.5	81.2	80.3	76.7	71.4	59.8	55.2	68.5
Philadelphia, Pa	Jan. 1, 1871	31.6	33.7	39.5	49.8	62.2	71.4	76.3	73.9	66.5	56.2	43.2	34.4	53.2
Pike's Peak, Colo	Nov. 1, 1873	2.7	3.7	7.8	12.9	22.1	32.9	39.9	38.9	32.2	21.0	10.5	6.1	19.2
Pittsburg, Pa	Nov. 1, 1870	30.9	32.8	38.4	49.8	62.0	70.9	74.3	71.9	64.5	54.0	40.5	33.0	51.8
Port Huron, Mich	July 25, 1874	22.2	24.3	29.5	41.0	53.3	62.8	68.7	68.0	60.8	49.7	36.0	27.0	45.2
Portland, Me	Jan. 15, 1871	23.3	26.0	32.6	43.2	54.9	64.0	69.7	68.0	60.6	50.4	38.0	29.4	46.7
Portland, Oreg	Nov. 1, 1871	39.5	41.9	47.2	51.4	55.9	61.8	66.4	65.0	60.9	53.0	45.0	41.6	52.5
Prescott, Ariz	Nov. 19, 1873	32.0	36.7	43.2	49.4	56.5	67.0	72.8	70.2	63.4	52.1	40.9	37.1	52.3
Provincetown, Mass	Feb. 15, 1882	28.1	29.7	32.9	41.8	51.0	65.4	70.2	69.0	61.6	53.0	42.6	32.8	47.9
Red Bluff, Cal	July 1, 1877	45.3	48.7	54.8	59.1	66.1	77.5	83.0	80.2	74.9	61.7	53.9	46.6	62.7
Rio Grande City, Tex	May 28, 1875	59.3	63.1	70.3	76.9	81.1	85.6	86.6	83.2	81.4	74.3	64.1	59.6	73.8
Roseburg, Oreg	July 15, 1877	40.3	42.2	47.5	50.6	55.1	61.5	68.0	65.1	60.4	50.5	43.8	41.8	51.9
Rochester, N. Y	Nov. 1, 1870	24.4	25.1	30.7	42.9	56.6	66.0	71.0	69.5	61.9	50.4	36.4	27.9	47.0
Sacramento, Cal	July 1, 1877	45.8	49.7	54.7	57.8	63.1	69.6	72.7	71.7	69.7	60.4	51.7	46.2	59.2
Saint Louis, Mo	Nov. 1, 1870	32.3	36.1	43.1	55.2	66.1	74.7	78.8	76.9	67.8	57.5	42.5	34.8	55.4
Saint Michael's, Fort, Alaska	June 28, 1874	8.4	-2.3	5.6	18.8	32.7	46.5	53.8	51.6	44.2	31.0	16.3	4.2	25.9
Saint Paul, Minn	Nov. 1, 1870	14.0	19.2	28.5	44.4	58.5	67.0	71.8	68.8	58.5	46.9	30.9	18.9	44.0
Saint Vincent, Minn	Sept. 5, 1880	-6.4	4.7	13.4	32.8	50.7	60.8	64.3	63.9	52.0	39.0	18.6	5.4	33.4
Salt Lake City, Utah	Mar. 19, 1874	28.7	33.1	41.6	48.8	57.2	67.6	75.5	74.8	64.7	51.8	38.4	32.5	51.1
San Diego, Cal	Nov. 1, 1871	53.6	54.3	55.7	57.7	61.0	64.4	67.1	68.7	66.8	62.9	58.3	55.6	60.5
Sandusky, Ohio	Aug. 2, 1877	28.9	31.7	37.0	47.7	60.4	67.6	73.5	72.2	65.1	55.4	41.2	32.7	51.2
Sandy Hook, N. J	Dec. 10, 1873	30.9	32.0	37.4	46.0	58.7	68.7	74.4	72.9	66.9	56.7	44.7	34.9	52.0
San Francisco, Cal	Mar. 8, 1871	50.6	51.9	53.4	54.3	56.2	58.5	58.2	58.6	59.8	59.3	55.6	51.6	55.7
Savannah, Ga	Jan. 1, 1871	52.0	54.4	59.5	66.6	73.4	80.4	82.9	80.7	75.8	66.8	57.8	52.2	66.9
Shaw, Fort, Mont	Apr. 1, 1880	15.8	23.1	33.7	39.3	49.2	58.9	63.6	63.1	53.4	39.2	28.6	26.2	41.7
Shreveport, La	Sept. 3, 1871	46.5	51.4	58.9	65.9	73.8	80.7	82.9	82.1	74.4	66.3	54.8	49.4	65.6
Sill, Fort, Ind. T	June 28, 1875	36.7	42.7	52.6	62.2	69.8	77.8	80.8	79.7	72.2	62.6	47.2	38.4	60.6
Sitka, Alaska	Mar. 30, 1881	36.0	33.2	36.8	42.0	46.9	51.1	58.2	55.2	52.6	45.9	38.5	36.8	43.8
Smithville, N. C	Oct. 15, 1875	47.4	49.6	54.1	60.8	69.3	77.2	81.1	79.6	74.4	65.8	54.8	48.1	63.5
Spokane Falls, Wash	Feb. 5, 1881	23.3	25.1	39.6	46.4	54.3	63.1	68.6	66.5	56.7	43.9	35.3	31.6	46.6
Springfield, Ill	July 1, 1879	29.6	34.6	40.0	53.3	64.2	71.5	76.6	74.5	65.4	57.2	41.4	32.8	53.2
Stockton, Fort, Tex	Feb. 26, 1876	44.2	48.4	56.9	64.4	72.7	79.1	80.1	77.5	71.4	63.5	50.3	45.5	62.7

Thomas, Camp, Ariz	Sept. 22, 1877	39.9	46.5	52.7	60.2	68.8	78.4	82.4	79.9	72.8	58.1	47.1	48.8	61.3
Toledo, Ohio	Nov. 1, 1870	27.8	29.9	36.0	47.7	59.0	69.8	74.1	71.9	63.7	53.3	39.8	30.8	50.3
Unalashka, Alaska	Aug. 18, 1878	31.6	30.3	32.8	34.1	39.5	46.4	49.4	50.4	45.6	40.0	33.6	31.7	38.8
Vicksburg, Miss	Sept. 10, 1871	48.4	52.8	59.1	65.6	73.4	80.1	81.9	80.5	74.8	66.2	55.0	50.3	65.7
Washington City	Nov. 1, 1870	33.2	36.1	42.0	52.7	64.4	73.7	78.1	74.8	67.6	57.8	44.0	35.5	55.0
West Las Animas, Colo	Oct. 1, 1881	20.4	28.0	41.8	49.6	57.6	69.3	75.0	73.0	64.4	50.8	36.2	30.6	49.6
Wilmington, N. C	Jan. 1, 1871	47.0	49.4	54.5	61.6	69.5	76.8	80.6	78.6	73.3	63.9	53.9	47.5	63.0
Yankton, Dak	Apr. 1, 1873	15.6	21.0	29.8	45.2	59.5	68.4	73.6	72.5	60.9	48.7	31.9	21.2	45.7
Yuma, Ariz	Nov. 18, 1873	53.6	59.0	65.0	69.2	77.2	86.2	92.5	91.1	84.3	72.1	60.5	56.0	72.3

NOTE.—Observations prior to August 25, 1872, were taken at 7.35 a. m., 4.35 p. m., and 11.35 p. m. (Washington time); from August 25, 1872, to November 1, 1879, at 7.35 a. m., 4.35 p. m., and 11.00 p. m. (Washington time); and from November 1, 1879, to December 31, 1888, at 7.00 a. m., 3.00 p. m., and 11 p. m. (Washington time).

APPENDIX 30.

Table showing the mean monthly and mean annual temperatures (in degrees Fahrenheit) at selected stations of the Signal Service, United States Army, deduced from the three telegraphic observations (computed from January, 1874, to December, 1883, inclusive.)

[The daily mean is obtained by dividing the sum of the three telegraphic observations by three; the monthly mean by dividing the sum of the daily means by the number of days in the month.]

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	22.1	25.2	32.6	44.9	59.2	68.2	72.5	70.7	63.0	51.2	39.0	28.6	48.2
Alpena, Mich	19.1	19.3	24.2	36.1	49.2	59.2	66.1	64.7	57.2	45.6	32.9	23.9	41.5
Atlantic City, N. J	32.2	33.7	38.5	46.3	57.2	66.9	72.4	72.0	67.1	57.0	44.2	35.4	51.9
Augusta, Ga	46.8	51.2	57.0	63.8	72.4	79.2	82.4	79.8	74.8	65.2	54.6	48.3	64.8
Baltimore, Md	34.7	37.2	42.5	52.3	64.5	73.9	78.5	74.8	68.2	58.1	45.8	37.5	55.7
Barnegat City, N. J	31.5	32.7	37.9	45.6	56.9	66.7	72.4	71.6	66.5	56.2	43.7	34.7	51.4
Boston, Mass	26.4	28.2	34.2	43.1	56.3	65.9	71.3	69.1	62.2	51.8	39.7	30.2	48.2
Buffalo, N. Y	24.8	24.9	30.1	40.3	53.4	63.9	69.8	69.2	62.3	51.0	38.4	29.3	46.4
Cairo, Ill	37.2	41.4	48.0	58.4	68.3	75.4	79.6	77.5	69.3	60.3	46.7	39.5	58.5
Cape Henry, Va	40.8	42.8	47.0	54.1	64.1	73.6	78.2	76.3	71.9	63.0	51.6	43.4	58.9
Cape May, N. J	34.8	36.3	41.2	48.2	59.0	68.5	73.8	73.1	68.5	59.5	47.4	38.2	54.0
Charleston, S. C	51.3	52.8	58.3	64.2	72.2	79.9	82.9	80.9	76.8	67.3	57.6	51.8	66.3
Cheyenne, Wyo	24.6	28.0	32.8	40.4	50.8	60.8	67.8	65.3	55.8	44.1	32.8	28.5	44.2
Chicago, Ill	25.8	29.8	35.5	45.4	57.3	65.8	72.6	71.8	64.0	53.1	39.6	30.3	49.2
Cincinnati, Ohio	35.1	33.4	43.6	54.0	65.7	73.8	78.4	75.2	68.1	58.1	45.3	37.7	56.1
Cleveland, Ohio	27.1	28.8	34.0	44.3	58.2	67.1	71.8	70.0	63.6	53.3	39.7	30.6	49.0
Davenport, Iowa	22.4	28.2	35.4	48.9	61.9	69.5	75.3	73.0	64.0	53.0	37.8	26.4	49.3
Denver, Colo	27.2	32.1	39.7	47.0	57.0	66.7	72.4	70.7	61.0	50.2	37.1	31.8	49.4
Detroit, Mich	25.3	27.8	33.1	44.7	58.1	67.1	71.9	70.2	62.9	52.2	38.9	30.0	48.5
Dubuque, Iowa	19.7	25.3	33.4	47.8	61.2	68.6	74.4	72.2	62.6	51.7	35.6	25.7	48.2
Duluth, Minn	12.0	17.2	25.1	38.4	48.9	57.9	67.1	65.8	56.5	45.1	29.2	18.0	40.1
Eastport, Me	19.7	22.4	28.6	37.6	47.3	55.1	60.5	60.8	55.8	47.0	36.0	25.0	41.3
Erie, Pa	26.2	28.8	33.7	43.8	57.6	67.3	72.4	70.7	64.0	53.7	41.0	32.3	49.5
Escanaba, Mich	15.5	17.2	23.2	35.5	49.8	60.1	67.1	65.1	56.7	45.0	31.7	22.0	40.7
Galveston, Tex	53.9	57.1	64.2	69.5	76.4	82.6	84.2	83.4	79.0	73.1	62.4	56.8	70.2
Grand Haven, Mich	26.8	27.3	32.1	43.4	55.9	63.9	69.8	68.4	61.2	51.0	38.5	30.5	47.4
Indianapolis, Ind	30.9	34.5	40.4	52.1	64.2	72.1	76.9	74.0	65.8	55.8	41.8	33.7	53.5
Indianola, Tex	53.5	57.6	65.1	70.3	76.3	82.1	83.8	82.8	78.9	73.4	62.4	56.8	70.3
Jacksonville, Fla	57.2	58.5	63.4	69.1	75.0	81.0	82.8	81.0	77.8	70.5	62.3	56.6	69.6
Keokuk, Iowa	23.0	31.4	38.3	51.4	63.6	71.8	77.7	75.1	68.2	54.8	39.3	30.0	52.1
Key West, Fla	71.0	72.0	73.8	76.8	79.8	83.4	84.3	84.3	82.9	79.2	75.0	70.5	77.8
Knoxville, Tenn	38.2	42.3	48.4	56.9	66.5	73.3	76.7	74.8	68.4	58.8	46.8	38.5	57.6
La Crosse, Wis	17.6	23.8	31.8	47.1	60.9	68.2	73.6	71.4	61.4	50.5	34.5	24.2	47.1

Leavenworth, Kans	27.5	33.3	41.2	53.8	65.3	73.3	78.0	76.6	66.6	55.9	40.4	32.2	53.7
Louisville, Ky	36.0	39.5	45.2	55.7	67.0	74.6	79.1	76.2	68.5	58.8	45.9	38.6	57.1
Lynchburg, Va	37.8	41.3	46.8	55.9	66.9	75.4	79.7	75.9	69.2	59.1	46.8	39.5	57.8
Marquette, Mich	18.2	19.6	25.1	37.2	50.8	58.4	66.2	65.1	56.9	46.0	32.1	23.7	41.6
Memphis, Tenn	41.5	45.4	52.4	61.2	70.9	78.0	81.4	78.8	71.0	62.4	49.9	43.4	61.4
Milwaukee, Wis	21.0	25.3	30.9	42.0	53.9	62.5	69.8	68.7	60.9	48.8	35.5	25.7	45.4
Montgomery, Ala	50.8	52.8	58.1	64.8	73.1	79.9	82.4	80.3	75.2	66.3	55.6	49.6	65.7
Mount Washington, N. H	5.0	6.1	11.2	19.9	34.0	43.8	48.0	47.2	41.2	30.4	17.5	9.8	26.2
Nashville, Tenn	40.3	43.7	50.1	59.3	69.7	77.2	80.5	77.9	70.3	61.2	48.6	41.4	60.0
New Haven, Conn	28.3	30.0	35.8	45.8	58.5	67.9	73.1	70.7	64.4	53.7	41.4	32.1	50.2
New London, Conn	29.2	30.4	36.1	45.0	56.5	65.8	71.4	69.8	63.8	54.0	42.1	32.7	49.8
New Orleans, La	56.0	58.2	63.5	68.9	75.8	81.2	82.7	82.0	77.8	70.9	61.5	56.0	69.5
New York City	30.4	31.7	37.1	46.4	59.0	68.4	73.7	71.9	65.9	55.6	43.1	33.5	51.4
Norfolk, Va	40.9	43.3	48.2	55.4	66.2	75.8	79.8	76.7	71.0	61.5	50.4	42.8	59.3
Omaha, Nebr	21.6	27.4	35.4	50.0	62.8	70.9	76.5	74.6	63.8	52.8	36.4	26.6	49.9
Oswego, N. Y	26.6	27.1	32.4	42.5	54.9	64.3	70.5	69.6	62.8	51.7	40.0	30.6	47.8
Philadelphia, Pa	31.8	34.0	39.7	49.2	62.0	71.5	76.2	73.6	67.0	56.6	44.3	35.1	53.4
Pike's Peak, Colo	2.7	3.7	7.8	12.9	22.1	32.9	39.9	38.9	32.2	21.0	10.0	6.3	19.2
Pittsburg, Pa	31.5	33.3	38.5	49.3	61.8	70.6	74.2	71.6	65.0	54.6	41.7	34.0	52.2
Portland, Me	23.8	26.8	33.8	43.5	55.4	64.1	69.9	68.4	61.0	50.9	39.2	30.9	47.3
Portland, Oreg	39.2	42.0	47.0	51.7	55.9	61.8	66.4	64.8	61.0	53.3	45.0	42.4	52.5
Saint Louis, Mo	32.9	36.4	42.9	54.8	65.9	74.0	78.8	76.5	68.0	57.9	43.2	35.3	55.5
Saint Paul, Minn	14.5	19.5	28.5	44.4	58.8	66.3	72.2	70.0	59.2	47.3	30.8	19.6	44.2
San Diego, Cal	53.4	54.3	55.5	57.9	61.1	64.6	67.2	68.6	66.8	63.0	57.9	55.6	60.5
Sandy Hook, N. J	30.9	32.0	37.4	46.0	58.7	68.7	74.4	72.9	66.9	56.7	44.7	34.9	52.0
San Francisco, Cal	50.1	51.8	53.4	54.4	56.5	58.7	58.4	58.4	60.0	59.1	55.4	51.5	55.7
Savannah, Ga	53.2	54.6	60.4	66.5	73.4	80.7	83.3	80.9	76.1	67.3	58.4	53.1	67.8
Shreveport, La	47.5	51.5	59.4	66.1	74.0	80.9	83.0	82.1	74.3	67.1	55.0	50.3	65.9
Toledo, Ohio	28.6	31.0	36.2	47.3	58.5	69.4	74.2	71.6	64.2	53.8	40.8	32.0	50.6
Vicksburg, Miss	49.5	52.8	59.5	65.2	73.4	80.0	82.0	80.0	74.4	66.0	55.5	50.7	65.7
Washington City	33.7	36.5	42.0	51.8	64.2	73.4	78.1	74.2	67.9	57.3	44.6	36.0	55.0
Wilmington, N. C	47.5	49.5	54.8	61.0	68.7	76.2	80.0	78.1	73.3	64.3	54.2	48.2	63.0
Yankton, Dak	15.6	21.0	29.8	45.7	60.0	67.9	73.5	72.1	60.9	48.9	31.5	21.4	45.7

NOTE.—Observations from January 1, 1874, to November 1, 1879, taken at 7.35 a. m., 4.35 p. m., and 11.00 p. m. (Washington time), and from November 1, 1879, to December 31, 1883, at 7 a. m., 3 p. m., and 11.00 p. m. (Washington time).

APPENDIX 31.

Table showing the mean monthly and mean annual temperatures (in degrees Fahrenheit) at selected stations of the Signal Service, United States Army, deduced from the three telegraphic observations (computed from January, 1879 to December, 1883, inclusive).

[The daily mean is obtained by dividing the sum of the three telegraphic observations by three; the monthly mean by dividing the sum of the daily means by the number of days in the month.]

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	22.8	27.2	33.8	46.6	61.5	68.8	73.3	71.0	64.3	53.9	40.8	30.9	49.7
Alpena, Mich	19.4	19.2	24.3	35.8	49.4	58.5	65.6	64.4	56.9	47.3	32.2	23.6	41.4
Apache, Fort, Ariz	38.5	37.9	45.1	50.3	57.2	67.5	71.5	69.4	63.2	52.1	39.6	37.1	52.0
Atlanta, Ga	45.8	48.5	53.6	61.3	68.9	76.3	78.9	75.5	70.9	64.2	51.1	46.3	61.8
Atlantic City, N. J	32.2	34.1	38.7	46.4	57.8	66.9	72.6	71.6	67.7	58.8	44.3	36.6	52.3
Augusta, Ga	49.7	53.1	57.3	64.0	72.3	79.6	82.2	79.4	74.9	67.9	54.9	50.1	65.5
Baltimore, Md	34.3	37.7	42.5	52.7	65.5	73.6	77.6	74.6	68.8	60.0	45.9	38.5	56.0
Barnegat City, N. J	31.6	33.3	38.1	45.6	57.0	66.4	72.0	71.0	66.9	57.8	43.8	35.9	51.7
Bismarck, Dak	6.3	12.1	22.1	40.0	55.2	64.3	69.0	67.9	55.6	43.5	25.3	11.1	39.4
Boston, Mass	26.4	28.6	33.8	43.5	56.5	65.4	70.3	68.8	62.5	52.4	39.8	31.0	48.3
Brownsville, Tex	59.6	62.0	69.1	74.9	79.6	83.3	84,2	82.2	78.9	75.4	65.4	62.1	73.1
Buffalo, N. Y	24.7	25.3	29.8	39.8	54.3	63.0	69.5	68.6	62.6	52.7	38.7	30.3	46.6
Buford, Fort, Dak	7.0	11.1	22.8	40.9	53.4	62.9	67.4	66.7	54.3	41.6	24.0	9.3	38.4
Cairo, Ill	37.2	41.8	48.5	59.4	69.1	76.2	79.4	77.4	69.2	62.6	47.1	39.7	59.0
Cape Henry, Va	40.2	43.2	46.7	54.4	64.9	73.7	77.6	76.1	72.5	64.8	52.0	44.5	59.2
Cape May, N. J	34.5	37.5	41.8	48.8	60.3	68.8	74.2	72.9	69.4	61.3	48.0	39.3	54.7
Charleston, S. C	52.2	54.4	58.3	64.3	73.1	80.1	83.0	80.7	76.3	69.3	57.5	53.3	66.9
Charlotte, N. C	42.0	46.2	50.6	59.1	68.9	76.9	79.7	76.4	70.9	63.0	49.6	43.8	60.6
Chattanooga, Tenn	44.0	46.2	51.7	60.2	68.5	75.7	78.5	75.6	69.9	63.3	49.8	43.7	60.6
Cheyenne, Wyo	25.1	26.9	34.5	41.3	50.5	61.1	66.4	65.0	55.8	43.3	32.2	29.4	44.3
Chicago, Ill	25.1	29.6	35.8	45.7	57.3	65.1	72.2	71.9	63.8	55.0	39.3	29.3	49.2
Cincinnati, Ohio	35.5	39.4	44.2	54.4	66.3	73.5	78.0	75.1	68.4	60.8	45.5	37.9	56.6
Cleveland, Ohio	26.7	29.5	33.7	44.3	58.6	66.6	71.3	69.7	63.8	54.9	39.6	30.6	49.1
Columbus, Ohio	30.5	34.4	39.6	50.3	63.6	70.6	75.2	72.3	65.6	57.0	41.3	33.5	52.8
Concho, Fort, Tex	44.0	48.3	58.2	65.2	73.2	80.5	82.2	78.7	72.3	65.2	51.2	47.1	63.9
Davenport, Iowa	22.8	28.6	36.1	49.6	62.5	69.7	74.6	73.1	63.7	55.0	38.8	28.6	50.3
Denver, Colo	28.9	39.7	41.0	48.4	56.7	67.2	72.2	70.7	61.5	49.5	35.4	33.1	49.6
Des Moines, Iowa	20.9	26.5	35.3	49.4	61.5	69.5	73.8	72.9	62.3	53.5	36.2	25.4	48.9
Detroit, Mich	25.8	29.5	34.3	45.5	58.8	66.8	71.9	70.3	63.2	54.7	40.1	31.3	49.4
Dodge City, Kans	27.1	31.6	42.8	53.7	63.3	74.1	76.9	74.6	66.3	54.9	37.3	30.7	52.8
Dubuque, Iowa	19.7	25.2	34.0	48.3	61.1	68.5	73.4	71.7	61.6	52.8	35.7	24.7	48.1

Duluth, Minn	11.8	15.9	25.2	38.6	48.8	58.7	66.2	64.9	55.8	46.5	28.2	15.8	39.7
Eastport, Me	20.0	22.5	28.2	37.3	47.2	55.8	60.7	60.8	56.1	47.3	36.0	25.6	41.4
El Paso, Tex	46.0	50.3	57.2	63.8	72.9	81.2	81.1	77.7	71.4	62.9	49.1	45.6	63.3
Erie, Pa	28.2	29.5	33.7	43.9	58.0	66.0	71.6	70.0	63.6	55.3	40.9	32.5	49.4
Escanaba, Mich	15.9	16.9	23.3	35.4	50.4	60.8	66.5	64.8	56.5	47.2	30.8	21.2	40.8
Galveston, Tex	54.5	57.4	64.6	70.6	76.6	82.4	83.9	82.9	79.2	74.4	62.8	57.9	70.6
Grand Haven, Mich	26.0	27.6	32.4	43.8	56.6	63.7	69.4	68.2	61.0	52.8	38.5	29.9	47.4
Grant, Fort, Ariz	42.9	45.8	52.5	58.3	66.9	76.5	76.9	74.2	70.9	60.4	48.6	45.3	59.9
Indianapolis, Ind	30.4	34.6	40.4	52.8	64.8	72.1	76.5	74.1	65.6	57.8	41.5	33.0	53.6
Indianola, Tex	54.2	57.2	65.3	71.7	77.0	82.3	83.5	83.0	79.0	74.4	62.3	58.0	70.6
Jacksonville, Fla	57.7	59.9	63.7	69.4	74.4	81.2	82.9	81.2	77.4	72.7	62.6	58.4	70.1
Keokuk, Iowa	25.1	31.1	38.7	52.1	64.4	71.9	77.2	75.3	65.9	56.2	39.3	29.6	52.2
Key West, Fla	71.7	72.8	73.6	77.0	79.8	83.5	85.2	84.8	82.8	79.7	75.5	71.7	78.1
Kittyhawk, N. C	42.1	44.6	47.5	54.2	64.2	73.8	78.2	76.3	73.0	65.5	53.2	46.0	59.9
Knoxville, Tenn	40.5	43.6	48.9	57.8	67.3	73.6	76.1	74.8	69.2	62.8	47.1	40.4	58.4
La Crosse, Wis	17.4	23.1	32.3	47.7	60.9	68.9	72.6	71.3	60.9	52.8	34.2	22.5	47.0
Leavenworth, Kans	27.5	33.1	42.0	54.5	65.5	73.7	77.1	76.2	66.6	56.9	40.8	31.8	53.8
Los Angeles, Cal	51.6	53.2	55.5	57.9	61.7	65.6	67.5	69.2	67.8	62.2	56.9	55.0	60.4
Louisville, Ky	36.6	40.5	45.4	56.1	67.6	74.0	78.1	75.8	68.5	61.2	46.3	39.0	57.4
Lynchburg, Va	38.1	42.1	46.6	56.3	68.1	75.5	78.9	76.2	69.8	61.1	46.9	40.5	58.3
Marquette, Mich	18.6	18.8	24.7	37.2	50.1	58.3	65.4	63.8	56.1	47.7	30.6	22.6	41.2
Memphis, Tenn	41.9	45.8	52.9	62.4	71.2	78.3	80.7	78.8	71.1	65.0	49.9	44.2	61.8
Milwaukee, Wis	22.0	26.0	32.3	42.9	54.3	62.5	68.9	68.7	60.5	51.9	35.7	25.5	45.9
Montgomery, Ala	51.0	53.8	58.5	65.5	72.8	79.8	81.6	79.4	74.9	69.0	55.6	50.5	66.0
Mount Washington, N. H	5.4	5.8	9.8	18.6	35.3	43.1	47.3	46.8	42.0	31.6	17.3	11.2	26.2
Nashville, Tenn	41.0	44.3	50.4	60.1	70.0	77.0	79.2	77.5	70.2	64.3	48.7	41.8	60.4
New Haven, Conn	27.2	29.7	35.2	45.4	58.4	67.2	72.0	69.6	64.1	54.1	40.8	31.9	49.7
New London, Conn	28.9	30.7	36.1	45.0	56.8	65.8	70.9	69.4	64.1	55.0	42.2	33.3	49.9
New Orleans, La	57.1	59.5	63.8	70.0	75.7	81.4	82.6	81.7	78.5	72.8	61.7	57.2	70.2
New York City	30.1	32.1	36.9	46.7	59.7	68.3	73.2	71.4	66.2	57.0	43.2	34.3	51.6
Norfolk, Va	40.5	44.2	47.8	55.8	67.2	75.8	79.2	76.7	72.1	63.7	51.0	44.4	59.9
North Platte, Nebr	21.7	24.1	37.0	48.1	58.7	68.6	72.6	72.4	61.0	49.7	33.1	24.4	47.6
Olympia, Wash	37.1	38.3	43.8	47.8	52.8	58.2	61.1	60.8	56.1	48.6	42.4	40.6	48.9
Omaha, Nebr	21.5	26.7	35.9	51.0	63.6	72.1	76.3	74.9	63.9	54.3	36.5	25.0	50.1
Oswego, N. Y	26.7	28.1	32.3	42.3	55.8	63.1	70.0	68.8	62.7	52.8	39.9	31.0	47.8
Philadelphia, Pa	31.7	35.0	40.1	49.9	63.0	71.7	75.9	73.7	68.1	58.6	44.7	36.4	54.1
Pike's Peak, Colo	2.8	4.8	9.4	14.7	22.8	34.2	40.1	38.8	31.5	20.8	9.4	6.9	19.6
Pittsburg, Pa	32.0	34.0	38.6	50.0	63.2	70.5	73.5	71.7	66.0	57.3	42.5	34.9	52.8
Port Huron, Mich	22.4	24.8	29.5	40.4	53.6	62.1	68.3	67.6	60.5	51.3	35.7	27.1	45.3
Portland, Me	24.8	27.7	34.0	44.0	56.0	64.0	69.9	68.7	61.5	52.0	39.8	30.0	47.7
Portland, Oreg	39.3	39.7	46.7	50.8	55.5	61.1	65.2	64.0	60.5	51.2	43.9	41.9	51.6
Prescott, Ariz	33.4	37.1	44.4	50.7	58.0	67.5	71.8	70.1	64.0	51.9	40.4	38.4	52.3
Roseburg, Oreg	39.5	41.1	46.7	50.5	54.9	61.1	66.0	64.5	60.6	50.3	42.2	42.3	51.7
Sacramento, Cal	45.0	49.4	54.3	57.5	62.6	69.1	72.1	71.2	69.2	59.4	50.3	45.6	58.8
Saint Louis, Mo	30.2	35.7	42.9	55.2	66.1	73.4	77.7	76.2	68.3	58.9	43.3	34.4	55.2
Saint Paul, Minn	14.0	18.6	29.5	45.5	58.4	67.1	70.8	69.9	58.6	49.6	30.8	18.2	44.2
Salt Lake City, Utah	27.9	31.4	41.8	48.9	57.2	67.9	75.2	74.8	65.2	49.5	34.9	33.3	50.7
San Diego, Cal	52.8	53.8	55.4	57.9	61.1	64.4	66.3	68.3	66.6	61.8	57.0	55.8	60.0
Sandy Hook, N. J	30.6	32.6	37.5	46.6	59.7	69.0	74.5	72.8	67.7	58.6	45.1	35.7	52.5
San Francisco, Cal	49.0	50.6	53.1	54.1	56.5	57.9	58.3	58.3	59.7	58.1	53.7	51.0	55.0
Savannah, Ga	54.0	56.2	60.5	65.7	72.5	81.1	83.5	80.7	76.2	69.5	58.6	54.7	67.9
Shreveport, La	48.1	51.4	60.0	67.8	74.3	81.2	82.8	81.8	74.2	66.5	54.6	50.7	66.2

Table showing the mean monthly and mean annual temperatures in degrees Fahrenheit at selected stations of the Signal Service, United States Army, &c.—Continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Smithville, N. C.	47.5	49.8	53.6	60.3	69.8	77.4	80.7	79.0	74.0	67.0	54.4	49.4	63.6
Stockton, Fort, Tex	44.2	48.4	56.8	64.4	72.6	79.1	80.0	76.3	70.7	63.2	50.0	46.5	62.7
Toledo, Ohio	28.4	31.7	36.7	47.5	60.9	69.0	73.8	71.6	64.3	55.7	40.9	32.2	51.1
Vicksburg, Miss	50.3	53.4	60.1	66.5	73.7	80.2	81.3	79.9	74.4	68.7	55.4	52.0	66.3
Washington City	32.6	36.6	41.4	51.9	65.1	73.1	77.1	74.3	68.7	59.5	44.7	36.6	55.1
Wilmington, N. C	48.5	51.1	54.5	61.0	69.5	76.8	79.8	78.2	72.7	66.8	54.6	50.1	63.7
Yankton, Dak	16.3	20.2	30.7	46.1	60.4	69.2	73.2	73.0	61.0	50.5	32.1	20.5	46.1

NOTE.—Observations from January 1, 1873, to November 1, 1879, taken at 7.35 a. m., 4.35 p. m., and 11.00 p. m. (Washington time), and from November 1, 1879, to December 31, 1883, at 7.00 a. m., 3.00 p. m., and 11.00 p. m. (Washington time).

APPENDIX 32.

Table showing the mean daily range of temperature (in degrees Fahrenheit) at stations of the Signal Service, United States Army, for each month of the year 1883.

[These means are obtained by dividing the sum of the daily ranges (as obtained from self-registering thermometers) by the number of days in the month.]

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	13.7	14.8	15.5	15.8	17.1	16.5	16.9	17.5	17.0	16.0	13.4	13.8
Alexander, Fort, Alaska	8.8	12.2	10.8	11.9	12.8	13.9	(a)	....	....	....	....	....
Alpena, Mich	16.7	19.4	22.5	16.4	17.9	16.1	16.6	20.9	17.5	14.6	13.9	12.7
Apache, Fort, Ariz	32.5	29.6	28.3	33.3	40.2	43.3	29.6	29.6	37.2	32.5	33.4	25.2
Assinaboine, Fort, Mont	19.6	20.2	18.0	21.0	22.2	24.7	29.2	25.3	25.7	16.6	21.6	17.0
Atlanta, Ga	15.8	16.1	18.5	19.2	19.2	16.4	18.6	17.6	17.8	16.7	16.4	17.6
Atlantic City, N. J	13.2	14.0	16.0	11.9	13.1	12.9	14.4	18.3	13.2	12.1	14.4	13.6
Augusta, Ga	17.8	17.9	22.5	19.3	21.7	18.3	18.2	17.2	18.1	16.6	18.4	19.1
Baltimore, Md	11.9	14.9	17.3	15.2	17.5	16.1	16.9	15.7	14.3	12.5	13.2	12.8
Barnegat City, N. J	12.1	13.1	14.5	10.6	11.9	12.2	13.1	10.8	10.7	9.9	13.1	13.5
Behring's Island, Behring Sea	(1)	(1)	(1)	(1)	(1)	8.2	9.5	8.6	8.8	10.1	8.0	10.8
Bennett, Fort, Dak	27.5	28.4	24.8	24.7	21.5	24.7	25.6	27.5	27.6	20.2	31.8	25.3
Benton, Fort, Mont	23.0	23.6	26.3	23.2	20.5	24.1	29.2	28.0	29.0	19.2	22.1	21.7
Bismarck, Dak	21.9	21.4	19.3	20.4	21.1	22.8	23.8	23.8	25.7	15.0	23.7	20.5
Block Island, R. I	14.6	13.5	14.2	12.0	12.0	10.5	12.2	11.3	11.5	11.4	14.0	15.8
Boise City, Idaho	23.9	24.2	27.2	25.3	27.0	34.0	[3]40.2	32.8	35.3	20.8	23.4	(2)
Boston, Mass	18.0	19.2	19.3	18.9	18.3	19.6	21.0	19.4	17.3	17.0	17.9	16.5
Brownsville, Tex	18.5	16.3	17.0	15.5	17.0	14.7	18.8	21.4	17.9	16.3	14.6	13.7
Buffalo, N. Y	13.8	15.4	16.6	15.6	15.9	15.8	12.1	14.0	17.1	13.9	16.2	16.3
Buford, Fort, Dak	19.5	21.1	19.3	22.1	[9]23.7	29.6	31.3	28.4	31.0	18.5	25.5	21.7
Cairo, Ill	15.3	15.7	14.4	16.8	17.4	15.7	15.1	15.4	17.5	13.6	16.2	17.3
Canby, Fort, Wash	....	....	....	....	....	....	....	....	[10]11.4	8.8	6.8	8.1
Cape Henry, Va	11.8	17.2	17.6	10.9	14.2	13.7	16.0	12.8	11.4	11.0	16.4	14.8
Cape May, N. J	13.3	[4]13.7	13.6	[5]12.8	[6]12.6	10.9	11.5	12.7	13.2	13.5	13.6	12.0
Cape Mendocino, Cal	(2)	(2)	11.9	10.4	12.7	13.3	11.1	11.1	14.7	10.1	10.8	11.6
Cedar Keys, Fla	11.9	10.9	13.1	11.9	13.1	12.1	11.9	13.2	14.4	11.8	14.6	13.4
Charleston, S. C	12.6	15.4	17.5	13.1	15.9	15.3	15.4	14.1	12.9	12.5	14.7	14.8
Charlotte, N. C	14.2	17.6	19.6	18.5	19.0	17.0	17.7	16.0	15.2	14.6	18.7	15.8
Chattanooga, Tenn	15.3	16.3	19.1	18.6	21.6	18.8	20.9	17.6	19.0	14.1	17.9	17.0

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[1] No record.
[2] Record incomplete.
[3] Sixteen days only.
[4] Twenty-six days only.
[5] Twenty-two days only.
[6] Twenty-five days only.
[9] Twenty-four days only.
[10] Station opened September 1, 1883.
a No later reports received.

Table showing the mean daily range of temperature (in degrees Fahrenheit) at stations of the Signal Service, United States Army, &c.—Continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	°	°	°	°	°	°	°	°	°	°	°	°
Cheyenne, Wyo	22.3	25.7	24.3	20.7	23.9	27.6	29.1	30.2	29.4	20.9	23.8	22.2
Chicago, Ill	16.8	15.8	14.5	14.5	15.1	18.5	16.5	12.3	12.1	11.0	15.4	15.1
Chincoteague, Va	11.5	14.9	16.1	14.7	14.9	14.6	14.7	12.3	11.4	11.9	14.9	13.9
Cincinnati, Ohio	14.5	16.6	16.1	17.2	17.2	15.1	16.2	15.8	16.5	12.1	15.0	14.9
Cleveland, Ohio	15.4	17.1	17.1	17.3	18.7	16.2	15.5	16.3	16.7	13.9	16.0	14.6
Coleman City, Tex	28.9	[6]20.8	25.0	27.3	25.8	26.4	[7]24.4	26.4	([8])	....	....	....
Columbus, Ohio	14.8	15.4	16.2	19.3	20.0	18.0	19.0	19.9	20.0	14.5	15.6	14.3
Concho, Fort, Tex	29.6	21.1	25.4	29.0	27.1	25.6	23.7	27.5	23.8	18.3	23.0	22.2
Custer, Fort, Mont	([1])	([1])	([1])	([1])	([1])	([1])	([11])	35.5	37.3	25.1	27.9	23.1
Davenport, Iowa	22.1	22.6	20.4	23.4	20.2	18.4	19.8	19.8	22.0	16.4	21.1	21.1
Davis, Fort, Tex	28.8	27.5	24.0	29.2	30.5	31.2	26.7	29.2	27.0	25.9	26.4	24.6
Dayton, Wash	15.6	22.7	21.7	20.8	23.7	31.3	33.7	32.0	32.3	23.1	18.4	14.3
Deadwood, Dak	27.1	23.3	23.9	15.1	16.5	20.5	19.5	21.2	18.3	13.5	21.5	17.3
Delaware Breakwater, Del	10.7	12.2	13.5	11.9	13.1	11.8	12.6	11.6	10.0	9.9	13.0	11.6
Denver, Colo	24.0	24.3	25.0	22.4	24.5	24.2	23.9	24.7	24.6	20.8	25.0	18.8
Des Moines, Iowa	21.9	18.9	16.8	21.6	17.4	19.0	20.4	20.1	20.5	15.0	20.7	19.4
Detroit, Mich	18.2	18.8	17.2	19.6	20.1	17.4	19.0	20.0	18.0	13.4	14.8	14.5
Dodge City, Kans	24.9	22.5	22.4	23.4	25.2	24.1	22.1	19.0	22.4	17.2	26.7	21.9
Dubuque, Iowa	19.6	19.0	17.4	21.7	19.1	18.8	20.1	20.6	21.7	13.2	17.4	17.0
Duluth, Minn	20.5	21.9	20.7	14.8	13.6	17.9	17.2	13.6	14.8	11.2	16.4	16.7
Eastport, Me	16.1	16.1	15.5	13.8	14.7	17.7	15.3	17.1	14.8	11.1	12.5	16.5
Elliott, Fort, Tex	25.6	25.1	25.0	23.9	26.3	25.2	24.1	22.0	([1])	19.8	23.3	24.7
El Paso, Tex	29.9	25.5	26.8	35.1	35.9	36.3	32.3	26.7	28.1	27.2	27.6	24.8
Erie, Pa	13.9	17.9	16.9	15.2	17.4	15.9	13.8	14.9	15.2	13.2	12.4	12.6
Escanaba, Mich	21.2	21.4	26.5	17.9	16.7	17.1	17.1	19.8	18.5	13.9	16.0	13.5
Fort Smith, Ark	20.2	20.9	23.4	23.7	23.6	22.5	23.2	23.7	27.2	18.0	22.9	20.2
Galveston, Tex	13.6	11.8	11.1	9.5	10.1	9.5	10.3	11.2	9.9	9.3	10.6	11.8
Grand Haven, Mich	12.1	14.7	17.0	15.4	15.2	15.0	12.0	14.1	15.0	12.1	14.0	13.2
Grant, Fort, Ariz	21.4	20.3	20.9	25.8	25.6	27.0	21.8	20.6	21.1	21.2	20.7	17.8
Hatteras, N. C	10.5	12.2	14.0	12.4	11.0	10.0	11.6	10.4	9.1	10.2	13.3	13.6
Helena, Mont	15.9	17.6	18.3	18.1	19.0	20.9	22.0	21.3	21.1	12.1	17.5	13.1
Huron, Dak	23.3	24.2	19.6	22.8	19.6	24.6	23.3	22.7	23.3	18.0	27.3	24.0
Indianapolis, Ind	14.4	18.8	18.1	19.1	19.3	17.2	17.6	18.1	18.9	12.8	15.6	15.9
Indianola, Tex	16.6	15.4	13.1	12.2	12.2	12.9	13.1	14.5	11.4	11.7	12.4	13.0
Jacksonville, Fla	14.5	15.7	17.0	14.2	16.5	14.2	15.5	15.8	14.6	13.1	15.4	17.6
Keokuk, Iowa	18.4	17.4	17.0	20.4	18.4	15.5	18.0	18.0	21.6	18.9	17.8	18.6
Key West, Fla	8.9	7.8	10.5	11.5	10.1	12.8	12.8	12.3	10.6	8.6	6.7	7.6
Kittyhawk, N. C	13.2	15.1	16.8	14.7	14.5	13.3	14.5	9.9	9.8	9.2	14.8	12.8
Knoxville, Tenn	17.5	18.2	19.5	21.3	22.5	19.1	20.2	20.1	22.3	17.3	20.8	17.7
La Crosse, Wis	18.5	17.5	16.2	17.3	14.5	[10]16.0	14.8	16.1	14.7	12.4	17.6	14.9

Leavenworth, Kans	19.0	19.5	18.9	23.5	21.1	19.8	19.0	20.0	21.9	17.1	20.9	19.0
Lewiston, Idaho	12.8	15.8	22.9	20.2	23.0	28.5	30.9	29.6	27.2	18.8	16.1	12.5
Little Rock, Ark	14.7	16.6	17.9	18.7	20.0	19.5	19.6	18.6	22.2	14.8	17.2	17.5
Los Angeles, Cal	22.4	21.4	17.4	23.8	24.0	26.8	24.9	28.2	27.0	21.8	25.1	21.8
Louisville, Ky	14.4	18.2	17.9	18.9	20.5	17.6	18.0	18.2	20.6	15.2	16.3	17.5
Lynchburg, Va	12.7	15.7	17.5	19.0	21.6	19.1	19.7	20.7	16.8	14.3	18.7	17.2
Mackinaw City, Mich	14.0	17.4	22.4	15.7	16.4	18.8	16.0	16.4	14.0	11.7	13.2	11.9
Macon, Fort, N. C	11.8	12.7	15.5	14.4	14.0	10.1	11.1	11.5	9.2	9.7	18.4	12.9
Maginnis, Fort, Mont	18.6	15.4	17.9	17.6	14.6	17.6	19.1	27.4	27.8	30.1	22.2	16.8
Marquette, Mich	17.2	20.0	21.7	15.7	16.7	18.8	18.0	19.8	18.1	13.9	17.2	15.3
Memphis, Tenn	15.9	16.8	17.2	18.6	18.8	18.7	18.4	17.7	18.6	14.8	17.1	17.8
Milwaukee, Wis	17.5	15.3	15.1	14.3	14.9	14.5	17.1	15.3	14.1	10.9	16.2	15.1
Mobile, Ala	15.0	16.2	18.2	17.1	20.6	18.8	20.1	19.3	19.1	16.9	18.8	18.0
Montgomery, Ala	16.8	18.1	20.4	19.8	21.5	17.7	20.0	19.6	20.8	19.0	19.4	18.2
Moorhead, Minn	22.4	25.2	22.3	19.9	23.8	27.3	25.5	24.1	24.3	16.0	23.7	24.1
Mount Washington, N. H	19.4	21.9	21.8	14.3	15.4	13.2	11.7	11.4	14.7	13.2	16.1	22.7
Nashville, Tenn	15.9	17.6	18.8	18.2	19.7	17.0	17.4	16.8	19.5	14.4	18.9	18.8
New Haven, Conn	15.7	17.1	18.7	16.4	18.7	17.0	18.0	19.7	19.8	18.0	16.4	16.9
New London, Conn	14.3	13.6	16.6	14.7	17.2	16.0	17.2	17.7	18.2	17.5	17.4	17.4
New Orleans, La	15.1	15.1	15.8	12.7	13.9	12.6	13.3	13.1	13.5	13.1	15.0	15.0
New York City	11.9	12.1	16.4	15.1	17.5	15.1	15.1	15.5	14.5	14.6	14.8	13.5
Norfolk, Va	12.4	16.7	18.1	15.8	16.9	16.2	16.8	13.5	12.6	11.7	17.1	15.1
North Platte, Nebr	23.1	24.3	25.4	23.9	21.5	21.4	22.2	20.8	22.4	16.5	24.9	21.0
Olympia, Wash	10.0	14.1	19.3	15.7	22.8	27.4	27.9	16.2	18.9	14.4	8.4	10.5
Omaha, Nebr	20.8	18.9	20.5	23.0	18.3	19.4	19.1	17.9	17.5	15.1	23.3	19.5
Ooglaamie (Point Barrow), Alaska	14.8	17.2	17.2	15.5	13.6	9.4	9.7	(14)	....	....	....	....
Oswego, N. Y	16.0	15.0	17.3	15.4	19.6	19.5	18.4	15.8	16.3	14.9	15.0	15.2
Palestine, Tex	19.2	18.1	18.9	19.8	18.5	18.2	19.9	21.4	21.0	[6]16.8	17.1	17.1
Pensacola, Fla	14.1	13.2	16.7	14.0	16.0	11.6	13.8	14.6	15.0	15.2	15.7	16.0
Philadelphia, Pa	11.7	12.5	16.1	14.0	18.5	15.8	15.9	14.7	14.7	13.5	12.7	11.7
Pike's Peak, Colo	15.4	13.6	11.7	14.7	14.0	13.6	12.9	12.8	12.1	11.8	10.7	11.0
Pittsburg, Pa	15.0	17.7	18.7	20.0	22.2	19.2	20.8	21.0	20.7	16.3	17.3	16.5
Port Huron, Mich	14.9	16.7	18.1	16.2	17.4	18.2	18.0	18.9	16.4	14.1	15.0	14.9
Portland, Me	15.9	17.5	18.8	17.3	16.2	16.3	17.4	16.5	16.2	15.4	14.6	15.4
Portland, Oreg	11.8	16.2	20.7	16.9	21.3	22.5	23.0	19.6	19.7	12.6	10.8	12.2
Prescott, Ariz	28.4	26.9	25.3	29.5	33.0	33.5	26.1	27.1	30.0	29.1	34.7	21.3
Provincetown, Mass	11.2	11.8	14.3	14.3	16.0	18.3	18.6	16.1	14.8	12.5	12.6	13.4
Red Bluff, Cal	21.7	22.4	24.4	20.7	22.2	27.8	31.1	31.3	28.3	18.9	20.8	18.7
Rio Grande City, Tex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	19.9	17.8	18.6
Rochester, N. Y	14.1	14.9	17.2	16.2	18.6	(15)	(1)	(1)	(1)	[16]14.2	14.4	13.6
Roseburg, Oreg	18.7	18.2	26.1	17.6	23.5	27.5	30.3	25.6	25.0	14.4	11.6	10.7
Sacramento, Cal	15.6	20.0	22.2	19.9	20.2	28.1	29.9	29.8	27.7	21.1	22.0	17.0
Saint Louis, Mo	16.1	17.2	16.5	21.0	20.5	18.2	18.9	18.9	21.2	13.3	17.7	18.0
Saint Michaels's, Fort, Alaska	11.6	12.9	13.0	12.2	12.3	11.7	12.1	9.1	7.7	8.2	14.1	13.1
Saint Paul, Minn	20.5	22.1	21.3	20.5	20.3	20.4	19.5	19.4	19.6	14.7	21.2	17.4
Saint Vincent, Minn	19.8	22.9	25.5	19.4	21.8	25.2	24.4	22.2	24.9	16.4	16.9	20.5
Salt Lake City, Utah	15.2	16.6	18.6	19.3	22.0	24.4	21.8	19.9	19.2	15.0	15.8	14.1

[1] No record.
[6] Twenty-five days only.
[7] Twenty-three days only.
[8] Observations discontinued September 5, 1883.
[11] Observations recommenced July 21, 1883.
[13] Twenty-one days only.
[14] Station closed August 7, 1883.
[15] Station closed June 15, 1883.
[16] Station reopened October 10, 1883.

APPENDIX 29.

Table of mean temperatures (in degrees Fahrenheit) for each month and the year at the stations of observation of the Signal Service, United States Army, computed from the three telegraphic observations, and from the opening of each station to and including December, 1883.

[The daily mean is obtained by dividing the sum of the three telegraphic observations by three; the monthly mean, by dividing the sum of the daily means by the number of days in the month.]

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	Dec. 22, 1873	23.1	25.2	32.6	44.9	59.2	68.2	72.5	70.7	63.0	51.2	39.0	28.6	48.2
Alpena, Mich	Sept. 10, 1872	18.7	19.2	24.4	36.1	48.9	59.8	65.8	64.7	56.7	45.2	32.2	23.6	41.8
Apache, Fort, Ariz	Oct. 9, 1877	38.5	37.9	45.1	50.3	57.2	67.5	72.0	70.0	63.8	52.6	40.4	36.5	52.0
Assinaboine, Fort, Mont	Oct. 6, 1879	9.6	16.8	30.6	41.5	51.0	62.6	67.0	65.9	53.9	39.0	26.2	20.3	41.0
Atlanta, Ga	Sept. 25, 1878	45.8	48.5	53.6	61.3	68.9	76.3	78.9	75.5	70.9	63.4	51.4	45.4	61.8
Atlantic City, N. J	Dec. 10, 1873	32.2	33.7	38.5	46.3	57.2	66.9	72.4	72.0	67.1	57.0	44.2	35.5	51.9
Augusta, Ga	Nov. 2, 1870	47.8	50.8	56.0	64.0	72.5	79.2	82.2	79.7	74.8	64.4	53.7	47.6	64.4
Baltimore, Md	Jan. 1, 1871	34.6	37.2	42.2	52.9	64.6	74.0	78.6	75.8	67.8	57.7	45.1	37.0	55.6
Barnegat City, N. J	Dec. 10, 1873	31.6	32.7	37.9	45.6	56.9	66.7	72.4	71.6	66.5	56.2	43.7	34.7	51.4
Behring's Island, Behring Sea	May 22, 1882	25.5	28.7	25.2	28.6	35.3	42.2	47.0	53.0	47.8	38.4	30.0	27.9	35.5
Bennett, Fort, Dak	Dec. 22, 1879	9.8	19.7	28.7	43.1	56.3	66.9	71.3	72.4	59.6	45.2	28.0	20.5	43.9
Benton, Fort, Mont	Oct. 11, 1879	12.5	20.6	29.4	42.9	54.6	63.0	69.8	68.4	56.5	43.9	26.2	21.9	42.8
Bismarck, Dak	Sept. 15, 1874	6.0	12.6	21.9	40.1	54.9	63.2	69.8	68.0	55.8	43.0	24.7	14.2	39.5
Block Island, R. I	Sept. 1, 1880	30.3	32.7	35.8	42.8	51.5	62.5	69.3	68.7	64.5	55.4	44.8	35.8	49.7
Boisé City, Idaho	July 1, 1877	29.2	33.7	43.3	49.5	56.1	66.1	73.0	71.9	60.7	47.2	37.6	32.2	50.3
Boston, Mass	Nov. 1, 1870	26.4	28.1	34.3	44.0	56.5	66.2	71.6	69.5	62.1	52.0	39.2	29.8	48.3
Brownsville, Tex	Aug. 25, 1875	59.3	62.1	69.0	74.8	79.7	83.5	84.4	83.3	79.6	75.8	65.4	60.4	73.0
Buffalo, N. Y	Nov. 1, 1870	25.1	25.3	30.8	41.4	53.8	64.6	70.0	69.4	61.9	50.8	37.3	29.1	46.6
Buford, Fort, Dak	Oct. 23, 1878	7.0	11.1	22.8	40.9	53.4	62.9	67.4	66.7	54.3	41.6	24.0	9.3	38.4
Cairo, Ill	June 1, 1871	36.1	40.7	47.5	58.5	68.2	75.6	79.6	78.0	69.2	59.6	45.8	38.4	58.1
Cape Henry, Va	Dec. 15, 1873	40.8	42.8	47.0	54.1	64.1	73.6	78.2	76.3	71.9	63.0	51.6	43.4	58.9
Cape May, N. J	May 24, 1871	34.2	35.4	40.2	48.1	58.7	68.3	73.6	73.2	67.9	58.8	46.2	37.4	53.6
Cape Mendocino, Cal	July 27, 1882	45.0	43.5	49.8	46.7	50.0	54.5	52.0	54.2	57.9	52.8	50.2	49.4	50.6
Cedar Keys, Fla	Nov. 7, 1879	59.8	62.1	63.9	70.9	75.7	81.3	82.8	81.8	79.4	74.1	63.6	59.5	71.2
Charleston, S. C	Jan. 5, 1871	49.6	52.6	57.7	64.5	72.5	79.8	82.9	80.8	76.0	66.9	57.1	50.9	66.0
Charlotte, N. C	Oct. 6, 1878	42.0	46.2	50.6	59.1	68.9	76.9	79.7	76.4	70.9	63.0	49.6	42.8	60.6
Chattanooga, Tenn	Jan. 8, 1879	44.0	46.2	51.7	60.2	68.5	75.7	78.5	75.6	69.9	63.3	49.8	43.7	60.6
Cheyenne, Wyo	Nov. 1, 1870	25.1	28.2	33.4	39.7	50.9	61.5	67.1	65.4	55.4	43.9	33.1	27.5	44.8
Chicago, Ill	Nov. 1, 1870	25.6	29.1	35.2	45.9	56.9	65.6	72.4	71.9	63.6	52.5	38.2	28.8	48.8
Chincoteague, Va	Mar. 16, 1880	33.7	38.3	41.1	49.5	59.8	69.6	74.7	73.0	70.2	61.0	47.6	38.5	54.8
Cincinnati, Ohio	Nov. 1, 1870	34.5	37.8	43.6	54.6	65.7	74.2	78.4	75.8	67.8	57.6	44.4	36.7	55.9
Cleveland, Ohio	Nov. 1, 1870	26.9	28.4	34.1	45.2	58.2	67.6	71.9	70.5	63.4	53.1	39.1	29.9	49.0
Columbus, Ohio	July 1, 1878	30.5	34.4	39.6	50.3	63.6	70.6	75.8	72.5	65.5	56.2	41.5	32.8	52.8

Concho, Fort, Texas	Oct. 10, 1875	43.9	48.4	58.3	65.4	73.6	80.3	82.1	79.4	72.6	65.1	51.2	46.1	63.8
Custer, Fort, Mont	Dec. 5, 1878	18.3	24.8	33.7	44.3	54.5	63.8	70.7	70.6	58.1	45.2	30.6	20.6	44.5
Davenport, Iowa	May 24, 1871	22.0	27.7	35.2	49.0	61.6	70.5	75.3	73.5	63.9	52.5	37.0	27.6	49.7
Davis, Fort, Tex	Dec. 24, 1877	44.5	47.8	54.8	61.4	69.3	75.3	75.2	71.2	66.5	61.3	49.9	44.4	59.8
Dayton, Wash	July 1, 1879	31.0	30.2	43.0	48.4	55.0	62.7	68.0	65.8	59.1	47.4	36.8	33.4	48.5
Deadwood, Dak	Dec. 1, 1877	22.3	25.4	32.4	40.0	49.2	59.9	64.3	66.4	53.5	41.7	31.4	23.1	41.4
Delaware Breakwater, Del	Jan. 28, 1880	32.5	33.3	40.4	48.3	59.7	68.5	73.5	72.3	69.8	60.7	47.4	37.8	53.9
Denver, Colo	Nov. 19, 1871	27.2	32.1	39.8	46.3	56.6	66.8	72.0	70.5	60.8	49.9	37.2	30.6	49.2
Des Moines, Iowa	Aug. 1, 1878	20.9	26.5	35.3	49.4	61.5	69.5	73.8	73.7	63.2	52.9	37.2	24.5	48.9
Detroit, Mich	Nov. 1, 1870	24.8	27.0	32.8	44.7	57.8	67.2	71.6	70.3	62.3	51.7	37.5	28.6	48.0
Dodge City, Kans	Sept. 15, 1874	26.7	33.8	42.1	53.2	63.4	73.1	77.4	75.4	66.9	55.0	38.5	31.6	53.0
Dubuque, Iowa	July 10, 1873	19.7	25.3	33.4	47.8	61.2	68.6	74.6	72.4	62.3	51.2	35.1	25.8	48.2
Duluth, Minn	Nov. 1, 1870	11.8	17.7	24.7	38.3	48.8	58.4	66.8	66.0	56.2	44.9	29.0	16.8	39.9
Eastport, Me	Apr. 1, 1873	19.7	22.4	28.6	37.7	47.4	55.1	60.6	60.8	55.6	47.2	35.3	24.9	41.3
Elliott, Fort, Tex	Nov. 29, 1879	32.0	35.6	45.7	56.4	63.5	73.5	75.0	74.0	66.7	56.9	40.1	35.3	54.6
El Paso, Tex	Nov. 6, 1877	46.0	50.3	57.2	63.8	72.9	81.3	81.6	78.7	72.4	63.8	50.5	46.2	63.3
Erie, Pa	May 25, 1873	28.2	28.8	33.7	43.8	57.6	67.6	72.4	70.7	63.8	53.4	40.5	32.5	49.5
Escanaba, Mich	May 24, 1871	15.1	16.9	22.6	35.6	49.4	60.5	66.8	65.2	56.2	45.0	31.1	20.7	40.5
Fort Smith, Ark	June 1, 1882	33.5	39.7	49.3	61.2	67.7	77.5	78.8	77.0	70.2	64.6	52.0	42.2	59.7
Galveston, Tex	Apr. 19, 1871	53.2	57.1	63.8	69.5	76.4	82.5	84.4	83.6	79.3	72.6	61.9	56.3	70.1
Grand Haven, Mich	May 24, 1871	25.5	26.4	31.2	43.5	55.5	64.4	69.5	68.5	60.6	50.4	37.2	29.3	47.0
Grant, Fort, Ariz	Nov. 1, 1875	42.9	45.8	52.5	58.2	67.0	76.4	77.2	74.5	71.0	61.4	49.2	45.1	59.9
Hatteras, N. C	Dec. 1, 1880	43.5	47.0	48.9	55.4	65.6	74.9	78.8	77.9	75.3	67.6	56.1	46.6	61.6
Helena, Mont	Oct. 15, 1879	16.1	21.4	34.9	41.3	51.0	60.6	67.6	67.3	57.6	41.0	27.8	23.7	43.4
Huron, Dak	July 1, 1881	10.2	18.8	28.8	44.4	51.1	64.7	68.7	69.4	57.4	45.9	30.2	20.9	42.2
Indianapolis, Ind	Feb. 10, 1871	30.0	33.7	40.3	52.7	64.8	72.7	76.6	74.3	65.4	55.2	40.7	32.7	53.2
Indianola, Tex	May 1, 1872	53.3	57.8	65.0	70.0	76.8	82.1	83.7	82.8	79.2	73.0	62.0	56.3	70.2
Jacksonville, Fla	Sept. 11, 1871	56.2	58.2	62.7	69.0	75.3	80.9	82.7	81.0	77.8	70.0	61.7	55.8	69.8
Keokuk, Iowa	July 16, 1871	25.2	30.8	38.0	51.3	63.5	72.6	77.6	75.6	65.9	54.6	38.4	29.1	51.9
Key West, Fla	Nov. 1, 1870	70.3	71.9	73.6	77.0	79.9	83.8	84.0	84.3	82.9	79.0	74.7	70.2	77.6
Kittyhawk, N. C	Jan. 15, 1875	42.6	43.7	48.0	54.4	63.7	73.4	78.7	76.8	72.5	63.7	52.9	44.7	59.8
Knoxville, Tenn	Jan. 1, 1871	38.2	42.1	47.8	57.4	66.6	73.5	76.7	74.8	68.2	58.0	45.9	39.0	57.3
La Crosse, Wis	Oct. 15, 1872	16.6	22.9	31.7	46.7	60.5	68.7	73.5	71.4	61.0	49.9	33.4	22.9	46.8
Leavenworth, Kans	May 21, 1871	26.5	32.8	40.8	53.5	65.1	74.0	77.9	76.6	66.8	55.5	37.6	30.7	53.4
Lewiston, Idaho	July 1, 1879	31.6	31.5	43.4	50.3	57.4	66.6	73.6	71.6	60.5	48.6	36.8	33.8	50.6
Little Rock, Ark	July 1, 1879	44.2	48.1	54.0	63.4	70.3	78.4	80.3	78.2	71.4	65.4	51.4	46.1	62.5
Los Angeles, Cal	July 1, 1877	52.2	53.5	55.6	57.9	61.8	65.5	68.1	69.3	67.8	62.5	57.9	55.0	60.4
Louisville, Ky	Sept. 11, 1871	35.3	39.0	44.4	55.6	67.2	74.9	79.1	76.4	68.6	58.2	44.9	37.7	56.8
Lynchburg, Va	May 24, 1871	37.1	40.5	45.8	56.0	66.5	74.7	78.9	75.8	68.6	58.2	45.8	38.6	57.3
Mackinaw City, Mich	Aug. 20, 1882	16.0	15.0	17.5	35.9	44.7	58.9	62.5	62.0	56.4	48.4	36.4	25.7	39.3
Macon, Fort, N. C	May 23, 1878	44.7	48.8	50.2	57.0	67.5	75.7	78.7	78.1	74.8	67.5	55.4	48.3	62.2
Maginnis, Fort, Mont	July 14, 1882	13.7	17.8	31.2	38.5	44.6	58.4	63.0	64.8	53.7	37.8	30.7	27.8	39.5
Marquette, Mich	May 1, 1871	17.7	19.2	24.3	37.1	49.6	58.9	65.6	65.1	56.4	45.7	31.2	22.3	41.2
Memphis, Tenn	Feb. 28, 1871	41.4	45.0	52.0	61.2	70.9	78.3	81.1	79.2	71.0	61.6	49.3	42.4	61.1
Milwaukee, Wis	Nov. 1, 1870	20.9	24.7	30.7	42.1	53.5	63.3	69.1	69.0	60.7	48.4	34.9	24.5	45.1
Mobile, Ala	Nov. 7, 1870	51.2	54.9	60.0	67.1	74.4	80.9	82.3	80.9	76.7	68.0	58.2	52.0	67.1
Montgomery, Ala	Nov. 9, 1870	49.7	52.8	57.8	64.8	73.2	79.7	82.5	80.3	75.2	65.7	54.8	49.0	65.6
Moorhead, Minn	Jan. 1, 1881	−2.4	8.8	17.4	37.5	53.0	63.3	67.3	66.8	54.7	42.0	23.0	10.9	36.8
Mount Washington, N. H	Dec. 1, 1870	5.3	6.1	10.1	20.2	33.6	43.5	47.8	47.3	40.6	30.4	16.4	8.9	26.0
Nashville, Tenn	Nov. 1, 1870	39.6	43.4	49.8	59.9	69.7	77.4	80.3	78.4	70.3	60.5	47.8	41.1	59.7
New Haven, Conn	Dec. 10, 1872	27.9	29.7	35.6	45.7	58.3	67.8	73.1	70.5	64.2	53.6	40.7	31.1	50.0
New London, Conn	Jan. 10, 1871	28.7	29.6	35.4	45.1	56.4	65.8	71.5	70.0	63.3	53.6	40.8	31.7	49.4

Table of mean temperatures (in degrees Fahrenheit) for each month and the year at the stations of observation of the Signal Service, &c.—Continued.

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		°	°	°	°	°	°	°	°	°	°	°	°	°
New Orleans, La	Nov. 1, 1870	54.7	58.3	63.0	68.7	75.0	81.1	82.6	82.0	77.8	70.5	61.0	55.1	69.2
New York City	Nov. 1, 1870	30.2	31.4	36.8	47.0	59.1	68.7	73.7	72.3	65.3	55.6	42.6	33.0	51.2
Norfolk, Va	Jan. 1, 1871	40.9	42.9	48.0	56.4	66.6	75.7	79.7	77.1	70.8	61.0	49.6	42.2	59.2
North Platte, Nebr	Sept. 18, 1874	20.6	27.2	35.8	47.8	58.5	68.0	73.5	72.4	61.4	49.2	34.1	26.0	47.8
Olympia, Wash	July 1, 1877	37.8	39.2	44.4	47.6	52.8	58.5	61.4	61.6	55.8	48.6	43.4	40.8	49.2
Omaha, Nebr	Nov. 1, 1870	21.2	27.6	35.7	50.0	62.4	71.6	76.2	74.7	63.3	52.5	35.6	25.2	49.7
Oswego, N. Y	Nov. 1, 1870	26.1	26.4	32.1	42.8	54.7	64.4	70.5	69.8	62.3	51.6	38.7	29.9	47.5
Palestine, Tex	Dec. 8, 1881	43.2	54.6	61.0	66.8	71.2	79.3	80.6	79.4	73.9	69.6	57.8	52.0	65.7
Pensacola, Fla	Oct. 27, 1879	56.0	58.2	61.4	68.3	73.9	80.5	81.2	80.2	76.7	71.4	59.8	55.2	68.5
Philadelphia, Pa	Jan. 1, 1871	31.6	33.7	39.5	49.8	62.2	71.4	76.3	73.9	66.5	56.2	43.2	34.4	53.2
Pike's Peak, Colo	Nov. 1, 1873	2.7	3.7	7.8	12.9	22.1	32.9	39.9	38.9	32.2	21.0	10.5	6.1	19.2
Pittsburg, Pa	Nov. 1, 1870	30.9	32.8	38.4	49.8	62.0	70.9	74.8	71.9	64.5	54.0	40.5	33.0	51.8
Port Huron, Mich	July 25, 1874	22.2	24.3	29.5	41.0	53.3	62.8	68.7	68.0	60.8	49.7	36.0	27.0	45.2
Portland, Me	Jan. 15, 1871	23.3	26.0	32.6	43.2	54.9	64.0	69.7	68.0	60.6	50.4	38.0	29.4	46.7
Portland, Oreg	Nov. 1, 1871	39.5	41.9	47.2	51.4	55.9	61.8	66.4	65.0	60.9	53.0	45.0	41.6	52.5
Prescott, Ariz	Nov. 19, 1873	32.0	36.7	43.2	49.4	56.5	67.0	72.8	70.2	63.4	52.1	40.9	37.1	52.3
Provincetown, Mass	Feb. 15, 1882	28.1	29.7	32.9	41.8	51.0	65.4	70.2	69.0	61.6	53.0	42.6	32.8	47.9
Red Bluff, Cal	July 1, 1877	45.3	48.7	54.8	59.1	66.1	77.5	83.0	80.2	74.9	61.7	53.9	46.6	62.7
Rio Grande City, Tex	May 28, 1875	59.3	63.1	70.3	76.9	81.1	85.6	86.6	83.2	81.4	74.3	64.1	59.6	73.3
Roseburg, Oreg	July 15, 1877	40.3	42.2	47.5	50.6	55.1	61.5	66.0	65.1	60.4	50.5	43.8	41.8	51.9
Rochester, N. Y	Nov. 1, 1870	24.4	25.1	30.7	42.9	56.6	66.0	71.0	69.5	61.9	50.4	36.4	27.9	47.0
Sacramento, Cal	July 1, 1877	45.8	49.7	54.7	57.8	63.1	69.6	72.7	71.7	69.7	60.4	51.7	46.2	59.2
Saint Louis, Mo	Nov. 1, 1870	32.3	36.1	43.1	55.2	66.1	74.7	78.8	76.9	67.8	57.5	42.5	34.3	55.4
Saint Michael's, Fort, **Alaska**	June 28, 1874	8.4	—2.3	5.6	18.8	32.7	46.5	53.8	51.6	44.2	31.0	16.3	4.2	25.9
Saint Paul, Minn	Nov. 1, 1870	14.0	19.2	28.5	44.4	58.5	67.0	71.8	69.8	58.5	46.9	30.9	18.9	44.0
Saint Vincent, Minn	Sept. 5, 1880	—6.4	4.7	13.4	32.8	50.7	60.8	64.3	63.9	52.0	39.0	18.6	5.4	33.4
Salt Lake City, Utah	Mar. 19, 1874	28.7	33.1	41.6	48.8	57.2	67.6	75.5	74.8	64.7	51.8	38.4	32.5	51.1
San Diego, Cal	Nov. 1, 1871	53.6	54.3	55.7	57.7	61.0	64.4	67.1	68.7	66.8	62.9	58.3	55.6	60.5
Sandusky, Ohio	Aug. 2, 1877	28.9	31.7	37.0	47.7	60.4	67.6	73.5	72.2	65.1	55.4	41.2	32.7	51.2
Sandy Hook, N. J	Dec. 10, 1873	30.9	32.0	37.4	46.0	58.7	68.7	74.4	72.9	66.9	56.7	44.7	34.9	52.0
San Francisco, Cal	Mar. 8, 1871	50.6	51.9	53.4	54.3	56.2	58.5	58.2	58.6	59.8	59.3	55.6	51.6	55.7
Savannah, Ga	Jan. 1, 1871	52.0	54.4	59.5	66.6	73.4	80.4	82.9	80.7	75.8	66.8	57.8	52.2	66.9
Shaw, Fort, Mont	Apr. 1, 1880	15.8	23.1	33.7	39.3	49.2	58.9	63.6	63.1	53.4	39.2	28.6	26.2	41.7
Shreveport, La	Sept. 8, 1871	46.5	51.4	58.9	65.9	73.8	80.7	82.9	82.1	74.4	66.3	54.3	49.4	65.6
Sill, Fort, Ind. T	June 28, 1875	36.7	42.7	52.6	62.2	69.8	77.8	80.8	79.7	72.2	62.6	47.2	38.4	60.6
Sitka, Alaska	Mar. 30, 1881	36.0	33.2	36.8	42.0	46.9	51.1	58.2	55.2	52.6	45.9	38.5	36.3	43.8
Smithville, N. C	Oct. 15, 1875	47.4	49.6	54.1	60.8	69.3	77.2	81.1	79.6	74.4	65.8	54.8	48.1	63.5
Spokane Falls, Wash	Feb. 5, 1881	23.3	25.1	39.6	46.4	54.3	63.1	68.6	66.5	56.7	43.9	35.3	31.6	46.6
Springfield, Ill	July 1, 1879	29.6	34.6	40.0	53.3	64.2	71.5	76.6	74.5	65.4	57.2	41.4	32.3	53.2
Stockton, Fort, Tex	Feb. 26, 1876	44.2	48.4	56.9	64.4	72.7	79.1	80.1	77.5	71.4	63.5	50.3	45.5	62.7

Thomas, Camp, Ariz	Sept. 22, 1877	39.9	46.5	53.7	60.3	68.8	78.4	83.4	79.9	72.8	58.1	47.1	42.8	61.3
Toledo, Ohio	Nov. 1, 1870	27.8	29.9	36.0	47.7	59.0	69.8	74.1	71.9	63.7	53.3	39.3	30.8	50.3
Unalashka, Alaska	Aug. 18, 1878	31.6	30.3	32.8	34.1	39.5	46.4	49.4	50.4	45.6	40.0	33.6	31.7	38.8
Vicksburg, Miss	Sept. 10, 1871	48.4	52.8	59.1	65.6	73.4	80.1	81.9	80.5	74.8	66.2	55.0	50.3	65.7
Washington City	Nov. 1, 1870	33.2	36.1	42.0	52.7	64.4	73.7	78.1	74.8	67.6	57.8	44.0	35.5	55.0
West Las Animas, Colo	Oct. 1, 1881	20.4	28.0	41.8	49.6	57.6	69.3	75.0	73.0	64.4	50.8	36.2	30.6	49.6
Wilmington, N.C	Jan. 1, 1871	47.0	49.4	54.5	61.6	69.5	76.8	80.6	78.6	73.3	63.9	53.9	47.5	63.0
Yankton, Dak	Apr. 1, 1873	15.6	21.0	29.8	45.2	59.5	68.4	73.6	72.5	60.9	48.7	31.9	21.2	45.7
Yuma, Ariz	Nov, 18, 1878	53.6	59.0	65.0	69.2	77.2	86.3	92.5	91.1	84.3	72.1	60.5	56.0	72.3

NOTE.—Observations prior to August 25, 1872, were taken at 7.35 a. m., 4.35 p. m., and 11.35 p. m. (Washington time); from August 25, 1872, to November 1, 1879, at 7.35 a. m., 4.35 p. m., and 11.00 p. m. (Washington time); and from November 1, 1879, to December 31, 1888, at 7.00 a. m., 3.00 p. m., and 11 p. m. (Washington time).

APPENDIX 30.

Table showing the mean monthly and mean annual temperatures (in degrees Fahrenheit) at selected stations of the Signal Service, United States Army, deduced from the three telegraphic observations (computed from January, 1874, to December, 1883, inclusive.)

[The daily mean is obtained by dividing the sum of the three telegraphic observations by three; the monthly mean by dividing the sum of the daily means by the number of days in the month.]

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	23.1	25.2	32.6	44.9	59.2	68.2	72.5	70.7	63.0	51.2	39.0	28.6	48.2
Alpena, Mich	19.1	19.8	24.2	36.1	49.2	59.2	66.1	64.7	57.2	45.6	32.9	23.9	41.5
Atlantic City, N. J	32.2	33.7	38.5	46.8	57.2	66.9	72.4	72.0	67.1	57.0	44.2	35.4	51.9
Augusta, Ga	46.8	51.2	57.0	63.8	72.4	79.2	82.4	79.8	74.8	65.2	54.6	48.3	64.8
Baltimore, Md	34.7	37.2	42.5	52.8	64.5	73.9	78.5	74.8	68.2	58.1	45.8	37.5	55.7
Barnegat City, N. J	31.5	32.7	37.9	45.6	56.9	66.7	72.4	71.6	66.5	56.2	43.7	34.7	51.4
Boston, Mass	26.4	28.2	34.2	43.1	56.3	65.9	71.3	69.1	62.2	51.8	39.7	30.2	48.2
Buffalo, N. Y	24.8	24.9	30.1	40.3	53.4	63.9	69.8	69.2	62.3	51.0	38.4	29.3	46.4
Cairo, Ill	37.2	41.4	48.0	58.4	68.3	75.4	79.6	77.5	69.8	60.8	46.7	39.5	58.5
Cape Henry, Va	40.8	42.8	47.0	54.1	64.1	73.6	78.2	76.3	71.9	63.0	51.6	43.4	58.9
Cape May, N. J	34.8	36.3	41.2	48.2	59.0	68.5	73.8	73.1	68.5	59.5	47.4	38.2	54.0
Charleston, S. C	51.8	52.8	58.3	64.2	72.2	79.9	82.9	80.9	76.3	67.3	57.6	51.8	66.3
Cheyenne, Wyo	24.6	28.0	32.8	40.4	50.8	60.8	67.8	65.8	55.8	44.1	32.8	28.5	44.2
Chicago, Ill	25.8	29.8	35.5	45.4	57.3	65.8	72.6	71.8	64.0	53.1	39.6	30.3	49.2
Cincinnati, Ohio	35.1	38.4	43.6	54.0	65.7	73.8	78.4	75.2	68.1	58.1	45.3	37.7	56.1
Cleveland, Ohio	27.1	28.8	34.0	44.3	58.2	67.1	71.8	70.0	63.6	53.3	39.7	30.6	49.0
Davenport, Iowa	22.4	28.2	35.4	48.9	61.9	69.5	75.3	73.0	64.0	53.0	37.8	28.4	49.8
Denver, Colo	27.2	32.1	39.7	47.0	57.0	66.7	72.4	70.7	61.0	50.2	37.1	31.8	49.4
Detroit, Mich	25.3	27.8	33.1	44.7	58.1	67.1	71.9	70.2	62.9	52.2	38.9	30.0	48.5
Dubuque, Iowa	19.7	25.3	33.4	47.8	61.2	68.6	74.4	72.2	62.6	51.7	35.6	25.7	48.2
Duluth, Minn	12.0	17.2	25.1	38.4	48.9	57.9	67.1	65.8	56.5	45.1	29.2	18.0	40.1
Eastport, Me	19.7	22.4	28.6	37.6	47.8	55.1	60.5	60.8	55.8	47.0	36.0	25.0	41.3
Erie, Pa	28.2	28.8	33.7	43.8	57.6	67.8	72.4	70.7	64.0	53.7	41.0	32.3	49.5
Escanaba, Mich	15.5	17.2	23.2	35.5	49.8	60.1	67.1	65.1	56.7	45.0	31.7	22.0	40.7
Galveston, Tex	53.9	57.1	64.2	69.5	76.4	82.6	84.2	83.4	79.0	73.1	62.4	56.8	70.2
Grand Haven, Mich	28.3	27.3	32.1	43.4	55.9	63.9	69.8	68.4	61.2	51.0	38.5	30.5	47.4
Indianapolis, Ind	30.9	34.5	40.4	52.1	64.2	72.1	76.9	74.0	65.8	55.8	41.8	33.7	53.5
Indianola, Tex	53.5	57.6	65.1	70.3	76.3	82.1	83.8	82.8	78.9	73.4	62.4	56.8	70.3
Jacksonville, Fla	57.2	58.5	63.4	69.1	75.0	81.0	82.8	81.0	77.8	70.5	62.3	56.6	69.6
Keokuk, Iowa	26.0	31.4	38.3	51.4	63.6	71.8	77.7	75.1	66.2	54.8	39.3	30.0	52.1
Key West, Fla	71.0	72.0	73.6	76.8	79.8	83.4	84.3	84.3	82.9	79.2	75.0	70.5	77.8
Knoxville, Tenn	39.2	42.3	48.4	56.9	66.5	73.3	76.7	74.3	68.4	58.8	46.8	39.5	57.6
La Crosse, Wis	17.6	23.8	31.8	47.1	60.9	68.2	73.6	71.4	61.4	50.5	34.5	24.2	47.1

Leavenworth, Kans	27.5	32.3	41.2	53.8	65.3	73.3	78.0	76.6	66.6	55.9	40.4	32.2	53.7
Louisville, Ky	36.0	39.5	45.2	55.7	67.0	74.6	79.1	76.2	68.5	58.8	45.9	38.6	57.1
Lynchburg, Va	37.8	41.3	46.8	55.9	66.9	75.4	79.7	75.9	69.2	59.1	46.8	39.5	57.8
Marquette, Mich	18.2	19.6	25.1	37.2	50.3	58.4	66.2	65.1	56.9	46.0	32.1	23.7	41.6
Memphis, Tenn	41.5	45.4	52.4	61.2	70.9	78.0	81.4	78.8	71.0	62.4	49.9	43.4	61.4
Milwaukee, Wis	21.0	25.3	30.9	42.0	53.9	62.5	69.3	68.7	60.9	48.8	35.5	25.7	45.4
Montgomery, Ala	50.3	52.8	58.1	64.8	73.1	79.9	82.4	80.3	75.2	66.3	55.6	49.6	65.7
Mount Washington, N. H	5.0	6.1	11.2	19.9	34.0	43.8	48.0	47.2	41.2	30.4	17.5	9.8	26.2
Nashville, Tenn	40.3	43.7	50.1	59.3	69.7	77.2	80.5	77.9	70.8	61.2	48.6	41.4	60.0
New Haven, Conn	28.3	30.0	35.8	45.8	58.5	67.9	73.1	70.7	64.4	53.7	41.4	32.1	50.2
New London, Conn	29.2	30.4	36.1	45.0	56.5	65.8	71.4	69.8	63.8	54.0	42.1	32.7	49.8
New Orleans, La	56.0	58.2	63.5	68.9	75.3	81.2	82.7	82.0	77.8	70.9	61.5	56.0	69.5
New York City	30.4	31.7	37.1	46.4	59.0	68.4	73.7	71.9	65.9	55.6	43.1	33.5	51.4
Norfolk, Va	40.9	43.3	48.2	55.4	66.2	75.8	79.8	76.7	71.0	61.5	50.4	42.8	59.3
Omaha, Nebr	21.6	27.4	35.4	50.0	62.8	70.9	76.5	74.6	63.8	52.8	36.4	26.6	49.9
Oswego, N. Y	26.6	27.1	32.4	42.5	54.9	64.3	70.5	69.6	62.8	51.7	40.0	30.6	47.8
Philadelphia, Pa	31.8	34.0	39.7	49.2	62.0	71.5	76.2	73.6	67.0	56.6	44.3	35.1	53.4
Pike's Peak, Colo	2.7	3.7	7.8	12.9	22.1	32.9	39.9	38.9	32.2	21.0	10.0	6.3	19.2
Pittsburg, Pa	31.5	33.3	38.5	49.3	61.8	70.6	74.2	71.6	65.0	54.6	41.7	34.0	52.2
Portland, Me	23.8	26.8	33.8	43.5	55.4	64.1	69.9	68.4	61.0	50.9	39.2	30.9	47.3
Portland, Oreg	39.2	42.0	47.0	51.7	55.9	61.8	66.4	64.8	61.0	53.3	45.0	42.4	52.5
Saint Louis, Mo	32.9	36.4	42.9	54.8	65.9	74.0	78.8	76.5	68.0	57.9	43.2	35.3	55.5
Saint Paul, Minn	14.5	19.5	28.5	44.4	58.8	66.3	72.2	70.0	59.2	47.3	30.8	19.6	44.2
San Diego, Cal	53.4	54.3	55.5	57.9	61.1	64.6	67.2	68.6	66.8	63.0	57.9	55.6	60.5
Sandy Hook, N. J	30.9	32.0	37.4	46.0	58.7	68.7	74.4	72.9	66.0	56.7	44.7	34.9	52.0
San Francisco, Cal	50.1	51.8	53.4	54.4	56.5	58.7	58.4	58.4	60.0	59.1	55.4	51.5	55.7
Savannah, Ga	53.2	54.6	60.4	66.5	73.4	80.7	83.3	80.9	76.1	67.3	58.4	53.1	67.3
Shreveport, La	47.5	51.5	59.4	66.1	74.0	80.9	83.0	82.1	74.3	67.1	55.0	50.3	65.9
Toledo, Ohio	28.6	31.0	36.2	47.3	58.5	69.4	74.2	71.6	64.2	53.8	40.8	32.0	50.6
Vicksburg, Miss	49.5	52.8	59.5	65.2	73.4	80.0	82.0	80.0	74.4	66.0	55.5	50.7	65.7
Washington City	33.7	36.5	42.0	51.8	64.2	73.4	78.1	74.2	67.9	57.3	44.6	36.0	55.0
Wilmington, N. C	47.5	49.5	54.8	61.0	68.7	76.2	80.0	78.1	73.3	64.3	54.2	48.2	63.0
Yankton, Dak	15.6	21.0	29.8	45.7	60.0	67.9	73.5	72.1	60.9	48.9	31.5	21.4	45.7

NOTE.—Observations from January 1, 1874, to November 1, 1879, taken at 7.35 a. m., 4.35 p. m., and 11.00 p. m. (Washington time), and from November 1, 1879, to December 31, 1883, at 7 a. m., 3 p. m., and 11.00 p. m. (Washington time).

APPENDIX 31.

Table showing the mean monthly and mean annual temperatures (in degrees Fahrenheit) at selected stations of the Signal Service, United States Army, deduced from the three telegraphic observations (computed from January, 1879 to December, 1883, inclusive).

[The daily mean is obtained by dividing the sum of the three telegraphic observations by three; the monthly mean by dividing the sum of the daily means by the number of days in the month.]

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	23.8	27.2	33.8	46.6	61.5	68.8	73.3	71.0	64.3	53.9	40.8	30.9	49.7
Alpena, Mich	19.4	19.2	24.3	35.8	49.4	58.5	65.6	64.4	56.9	47.3	32.2	23.6	41.4
Apache, Fort, Ariz	33.5	37.9	45.1	50.3	57.2	67.5	71.5	69.4	63.2	52.1	39.6	37.1	52.0
Atlanta, Ga	45.8	48.5	53.6	61.3	68.9	76.3	78.9	75.5	70.9	64.2	51.1	46.3	61.8
Atlantic City, N. J	32.2	34.1	38.7	46.4	57.8	66.9	72.6	71.6	67.7	58.8	44.3	36.6	52.3
Augusta, Ga	49.7	53.1	57.3	64.0	72.3	79.6	82.2	79.4	74.9	67.9	54.9	50.1	65.5
Baltimore, Md	34.3	37.7	42.5	52.7	65.5	73.6	77.6	74.6	68.8	60.0	45.9	38.5	56.0
Barnegat City, N. J	31.6	33.3	38.1	45.6	57.0	66.4	72.0	71.0	66.9	57.8	43.8	35.9	51.7
Bismarck, Dak	6.3	12.1	22.1	40.0	55.2	64.3	69.0	67.9	55.6	43.5	25.3	11.1	39.4
Boston, Mass	26.4	28.6	33.8	43.5	56.5	65.4	70.3	68.8	62.5	52.4	39.8	31.0	48.3
Brownsville, Tex	59.6	62.0	69.1	74.9	79.6	83.3	84,2	82.2	78.9	75.4	65.4	62.1	73.1
Buffalo, N. Y	24.7	25.3	29.8	39.8	54.3	63.0	69.5	68.6	62.6	52.7	38.7	30.3	46.6
Buford, Fort, Dak	7.0	11.1	22.8	40.9	53.4	62.9	67.4	66.7	54.3	41.6	24.0	9.3	38.4
Cairo, Ill	37.2	41.8	48.5	59.4	69.1	76.2	79.4	77.4	69.2	62.6	47.1	39.7	59.0
Cape Henry, Va	40.2	43.2	46.7	54.4	64.9	73.7	77.6	76.1	72.5	64.8	52.0	44.5	59.2
Cape May, N. J	34.5	37.5	41.8	48.8	60.3	68.8	74.2	72.9	69.4	61.3	48.0	39.3	54.7
Charleston, S. C	52.2	54.4	58.8	64.8	73.1	80.1	83.0	80.7	76.3	69.8	57.5	53.3	66.9
Charlotte, N. C	42.0	46.2	50.6	59.1	68.9	76.9	79.7	76.4	70.9	63.0	49.6	43.8	60.6
Chattanooga, Tenn	44.0	46.2	51.7	60.2	68.5	75.7	78.5	75.6	69.9	63.3	49.8	43.7	60.6
Cheyenne, Wyo	25.1	26.9	34.5	41.3	50.5	61.1	66.4	65.0	55.8	43.3	32.2	29.4	44.3
Chicago, Ill	25.1	29.6	35.3	45.7	57.3	65.1	72.2	71.9	63.8	55.0	39.3	29.3	49.2
Cincinnati, Ohio	35.5	39.4	44.2	54.4	66.3	73.5	78.0	75.1	68.4	60.8	45.5	37.9	56.6
Cleveland, Ohio	26.7	29.5	33.7	44.3	58.6	66.6	71.3	69.7	63.8	54.9	39.6	30.6	49.1
Columbus, Ohio	30.5	34.4	39.6	50.3	63.6	70.6	75.2	72.8	65.6	57.0	41.3	33.5	52.8
Concho, Fort, Tex	44.0	48.3	58.2	65.2	73.2	80.5	82.3	78.7	72.3	65.2	51.2	47.1	63.9
Davenport, Iowa	22.3	28.6	36.1	49.6	62.5	69.7	74.6	73.1	63.7	55.0	38.8	28.6	50.3
Denver, Colo	28.9	30.7	41.0	48.4	56.7	67.2	72.2	70.7	61.5	49.5	35.4	33.1	49.6
Des Moines, Iowa	20.9	26.5	35.3	49.4	61.5	69.5	73.8	72.9	62.8	53.5	36.2	25.4	48.9
Detroit, Mich	25.8	29.5	34.3	45.5	58.8	66.8	71.9	70.3	63.2	54.7	40.1	31.3	49.4
Dodge City, Kans	27.1	31.6	42.8	53.7	63.3	74.1	76.9	74.6	66.3	54.9	37.3	30.7	52.8
Dubuque, Iowa	19.7	25.2	34.0	48.2	61.1	68.5	73.4	71.7	61.6	52.8	35.7	24.7	48.1

Duluth, Minn	11.8	15.9	25.2	38.6	48.8	58.7	66.2	64.9	55.8	46.5	28.2	15.8	39.7
Eastport, Me	20.0	22.5	28.2	37.3	47.2	55.3	60.7	60.8	56.1	47.3	36.0	25.6	41.4
El Paso, Tex	46.0	50.3	57.2	63.8	72.9	81.2	81.1	77.7	71.4	62.9	49.1	45.6	63.3
Erie, Pa	28.2	29.5	33.7	43.9	58.0	66.0	71.6	70.0	63.6	55.3	40.9	32.5	49.4
Escanaba, Mich	15.9	16.9	23.3	35.4	50.4	60.8	66.5	64.8	56.5	47.2	30.8	21.2	40.8
Galveston, Tex	54.5	57.4	64.6	70.6	76.6	82.4	83.9	82.9	79.2	74.4	62.3	57.9	70.6
Grand Haven, Mich	26.0	27.6	32.4	43.3	56.6	63.7	69.4	68.2	61.0	52.3	38.5	29.9	47.4
Grant, Fort, Ariz	42.9	45.8	52.5	58.3	66.9	76.5	76.9	74.2	70.9	60.4	48.6	45.3	59.9
Indianapolis, Ind	30.4	34.6	40.4	52.3	64.8	72.1	76.5	74.1	65.6	57.8	41.5	33.0	53.6
Indianola, Tex	54.2	57.2	65.3	71.7	77.0	82.3	83.5	83.0	79.0	74.4	62.3	58.0	70.6
Jacksonville, Fla	57.7	59.9	63.7	69.4	74.4	81.2	82.9	81.2	77.4	72.7	62.6	58.4	70.1
Keokuk, Iowa	25.1	31.1	38.7	52.1	64.4	71.9	77.2	75.3	65.9	56.2	39.8	29.6	52.2
Key West, Fla	71.7	72.3	73.6	77.0	79.8	83.5	85.2	84.3	82.8	79.7	75.5	71.7	78.1
Kittyhawk, N. C	42.1	44.6	47.5	54.2	64.2	73.8	78.2	76.3	73.0	65.5	53.2	46.0	59.9
Knoxville, Tenn	40.5	43.6	48.9	57.8	67.3	73.6	76.1	74.3	69.2	62.3	47.1	40.4	58.4
La Crosse, Wis	17.4	23.1	32.3	47.7	60.9	68.9	72.6	71.3	60.9	52.3	34.2	22.5	47.0
Leavenworth, Kans	27.5	33.1	42.0	54.5	65.5	73.7	77.1	76.2	66.6	56.9	40.8	31.8	53.8
Los Angeles, Cal	51.6	53.2	55.5	57.9	61.7	65.6	67.5	69.2	67.8	62.2	56.9	55.0	60.4
Louisville, Ky	36.6	40.5	45.4	56.1	67.6	74.0	78.1	75.8	68.5	61.2	46.3	39.0	57.4
Lynchburg, Va	38.1	42.1	46.6	56.3	68.1	75.5	78.9	76.2	69.8	61.1	46.9	40.5	58.3
Marquette, Mich	18.6	18.8	24.7	37.2	50.1	58.3	65.4	63.8	56.1	47.7	30.6	22.6	41.2
Memphis, Tenn	41.9	45.8	52.9	62.4	71.2	78.3	80.7	78.3	71.1	65.0	49.9	44.2	61.8
Milwaukee, Wis	22.0	26.0	32.3	42.9	54.3	62.5	68.9	68.7	60.5	51.9	35.7	25.5	45.9
Montgomery, Ala	51.0	53.8	58.5	65.5	72.8	79.8	81.6	79.4	74.9	69.0	55.6	50.5	66.0
Mount Washington, N. H	5.4	5.8	9.8	18.6	35.8	43.1	47.3	46.8	42.0	31.6	17.3	11.2	26.2
Nashville, Tenn	41.0	44.3	50.4	60.1	70.0	77.0	79.2	77.5	70.3	64.3	48.7	41.8	60.4
New Haven, Conn	27.2	29.7	35.2	45.4	58.4	67.2	72.0	69.6	64.1	54.1	40.8	31.9	49.7
New London, Conn	28.9	30.7	36.1	45.0	56.8	65.8	70.9	69.4	64.1	55.0	42.2	33.3	49.9
New Orleans, La	57.1	59.5	63.8	70.0	75.7	81.4	82.6	81.7	78.5	72.8	61.7	57.2	70.2
New York City	30.1	32.1	36.9	46.7	59.7	68.3	73.2	71.4	66.2	57.0	43.2	34.8	51.6
Norfolk, Va	40.5	44.2	47.8	55.8	67.2	75.8	79.2	76.7	72.1	63.7	51.0	44.4	59.9
North Platte, Nebr	21.7	24.1	37.0	48.1	58.7	68.6	72.6	72.4	61.0	49.7	33.1	24.4	47.6
Olympia, Wash	37.1	38.3	43.8	47.8	52.8	58.2	61.1	60.8	56.1	48.6	42.4	40.6	48.9
Omaha, Nebr	21.5	26.7	35.9	51.0	63.6	72.1	76.3	74.9	63.9	54.3	36.5	25.0	50.1
Oswego, N. Y	26.7	28.1	32.3	42.3	55.8	63.1	70.0	68.8	62.7	52.8	39.9	31.0	47.8
Philadelphia, Pa	31.7	35.0	40.1	49.9	63.0	71.7	75.9	73.7	66.1	58.6	44.7	36.4	54.1
Pike's Peak, Colo	2.3	4.3	9.4	14.7	22.8	34.2	40.1	38.8	31.5	20.8	9.4	6.9	19.6
Pittsburg, Pa	32.0	34.0	38.6	50.0	63.2	70.5	73.5	71.7	66.0	57.3	42.5	34.9	52.8
Port Huron, Mich	22.4	24.8	29.5	40.4	53.6	62.1	68.3	67.6	60.5	51.3	35.7	27.1	45.3
Portland, Me	24.8	27.7	34.0	44.0	56.0	64.0	69.9	68.7	61.5	52.0	39.8	30.0	47.7
Portland, Oreg	39.3	39.7	46.7	50.8	55.5	61.1	65.2	64.0	60.5	51.2	43.9	41.9	51.6
Prescott, Ariz	33.4	37.1	44.4	50.7	58.0	67.5	71.8	70.1	64.0	51.9	40.4	38.4	52.3
Roseburg, Oreg	39.5	41.1	46.7	50.5	54.9	61.1	66.0	64.5	60.6	50.3	42.2	42.8	51.7
Sacramento, Cal	45.0	49.4	54.3	57.5	62.6	69.1	72.1	71.2	69.2	59.4	50.3	45.6	58.8
Saint Louis, Mo	30.2	35.7	42.9	55.2	66.1	73.4	77.7	76.2	68.3	58.9	43.3	34.4	55.2
Saint Paul, Minn	14.0	18.6	29.5	45.5	58.4	67.1	70.8	69.9	58.6	49.6	30.8	18.2	44.2
Salt Lake City, Utah	27.9	31.4	41.8	48.9	57.2	67.9	75.2	74.8	65.2	49.5	34.9	33.3	50.7
San Diego, Cal	52.8	53.3	55.4	57.9	61.1	64.4	66.8	68.3	66.6	61.8	57.0	55.8	60.0
Sandy Hook, N. J	30.6	32.6	37.5	46.6	59.7	69.0	74.5	72.8	67.7	58.6	45.1	35.7	52.5
San Francisco, Cal	49.0	50.6	53.1	54.1	56.5	57.9	58.3	58.3	59.7	58.1	53.7	51.0	55.0
Savannah, Ga	54.0	56.2	60.5	66.7	73.5	81.1	83.5	80.7	76.2	69.5	58.6	54.7	67.9
Shreveport, La	48.1	51.4	60.0	67.3	74.3	81.2	83.3	81.3	74.2	68.5	54.6	50.7	66.2

Table showing the mean monthly and mean annual temperatures in degrees Fahrenheit at selected stations of the Signal Service, United States Army, &c.—Continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Smithville, N. C.	47.5	49.8	53.6	60.3	69.8	77.4	80.7	79.0	74.0	67.0	54.4	49.4	63.6
Stockton, Fort, Tex	44.2	48.4	56.8	64.4	72.6	79.1	80.0	76.3	70.7	63.2	50.0	46.5	62.7
Toledo, Ohio	28.4	31.7	36.7	47.5	60.9	69.0	73.8	71.6	64.3	55.7	40.9	32.2	51.1
Vicksburg, Miss	50.3	53.4	60.1	66.5	73.7	80.2	81.3	79.9	74.4	68.7	55.4	52.0	66.3
Washington City	32.6	36.6	41.4	51.9	65.1	73.1	77.1	74.3	68.7	59.5	44.7	36.6	55.1
Wilmington, N. C	48.5	51.1	54.5	61.0	69.5	76.8	79.8	78.2	73.7	66.8	54.6	50.1	63.7
Yankton, Dak	16.3	20.2	30.7	46.1	60.4	69.2	73.2	73.0	61.0	50.5	32.1	20.5	46.1

NOTE.—Observations from January 1, 1879, to November 1, 1879, taken at 7.35 a. m., 4.35 p. m., and 11.00 p. m. (Washington time), and from November 1, 1879, to December 31, 1883, at 7.00 a. m., 3.00 p. m., and 11.00 p. m. (Washington time).

APPENDIX 32.

Table showing the mean daily range of temperature (in degrees Fahrenheit) at stations of the Signal Service, United States Army, for each month of the year 1883.

[These means are obtained by dividing the sum of the daily ranges (as obtained from self-registering thermometers) by the number of days in the month.]

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	13.7	14.3	15.5	15.8	17.1	16.5	16.9	17.5	17.0	16.0	13.4	13.8
Alexander, Fort, Alaska	8.3	12.2	10.8	11.9	18.8	18.9	(a)					
Alpena, Mich	16.7	19.4	22.5	16.4	17.9	16.1	16.6	20.9	17.5	14.6	13.9	12.7
Apache, Fort, Ariz	32.5	29.6	28.3	33.3	40.2	43.8	29.6	29.6	37.2	32.5	38.4	25.2
Assinaboine, Fort, Mont	19.6	20.2	18.0	21.0	22.2	24.7	29.2	25.3	25.7	16.6	21.6	17.0
Atlanta, Ga	15.3	16.1	18.5	19.2	19.2	16.4	18.6	17.6	17.8	16.7	16.4	17.6
Atlantic City, N. J	13.2	14.0	16.0	11.9	13.1	12.9	14.4	13.8	13.2	12.1	14.4	13.6
Augusta, Ga	17.8	17.9	22.5	19.8	21.7	18.8	18.2	17.2	18.1	16.6	18.4	19.1
Baltimore, Md	11.9	14.9	17.3	15.2	17.5	16.1	16.9	15.7	14.8	12.5	13.2	12.8
Barnegat City, N. J	12.1	13.1	14.5	10.6	11.9	12.2	13.1	10.8	10.7	9.9	13.1	13.5
Behring's Island, Behring Sea	(1)	(1)	(1)	(1)	(1)	8.2	9.5	8.6	8.8	10.1	8.0	10.3
Bennett, Fort, Dak	27.5	28.4	24.8	24.7	21.5	24.7	25.6	27.5	27.6	20.2	31.8	25.3
Benton, Fort, Mont	22.0	23.6	26.3	28.2	20.5	24.1	29.2	28.0	29.0	19.2	22.1	21.7
Bismarck, Dak	21.9	21.4	19.3	20.4	21.1	22.8	23.8	28.8	25.7	15.0	23.7	20.5
Block Island, R. I	14.6	13.5	14.2	12.0	12.0	10.5	12.2	11.3	11.5	11.4	14.0	15.3
Boise City, Idaho	23.9	24.2	27.2	25.3	27.0	34.0	[3]40.2	32.3	35.3	20.8	23.4	(2)
Boston, Mass	18.0	19.2	19.3	18.9	18.3	19.6	21.0	19.4	17.3	17.0	17.9	16.5
Brownsville, Tex	18.5	16.3	17.0	15.5	17.0	14.7	18.8	21.4	17.9	16.3	14.6	13.7
Buffalo, N. Y	13.8	15.4	16.6	15.6	15.9	15.8	12.1	14.0	17.1	13.9	16.2	16.3
Buford, Fort, Dak	19.5	21.1	19.3	22.1	[9]23.7	29.6	31.3	28.4	31.0	18.5	25.5	21.7
Cairo, Ill	15.3	15.7	14.4	16.3	17.4	15.7	15.1	15.4	17.5	13.6	16.2	17.3
Canby, Fort, Wash									[10]11.4	8.8	6.8	8.1
Cape Henry, Va	11.8	17.2	17.6	10.9	14.2	13.7	16.0	12.8	11.4	11.0	16.4	14.8
Cape May, N. J	13.3	[4]13.7	13.6	[5]12.8	[6]12.6	10.9	11.5	12.7	13.2	13.5	13.6	12.0
Cape Mendocino, Cal	(2)	(2)	11.9	10.4	12.7	13.3	11.1	11.1	14.7	10.1	10.3	11.6
Cedar Keys, Fla	11.9	10.9	13.1	11.9	13.1	12.1	11.9	13.3	14.4	11.8	14.6	13.4
Charleston, S. C	12.6	15.4	17.5	13.1	15.9	15.3	15.4	14.1	12.9	12.5	14.7	14.8
Charlotte, N. C	14.2	17.6	19.6	18.5	19.0	17.0	17.7	16.0	15.2	14.6	18.7	15.8
Chattanooga, Tenn	15.8	16.3	19.1	18.6	21.6	18.8	20.9	17.6	19.0	14.1	17.9	17.0

[1] No record.
[2] Record incomplete.
[3] Sixteen days only.
[4] Twenty-six days only.
[5] Twenty-two days only.
[6] Twenty-five days only.
[9] Twenty-four days only.
[10] Station opened September 1, 1883.
a No later reports received.

Table showing the mean daily range of temperature (in degrees Fahrenheit) at stations of the Signal Service, United States Army, &c.—Continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	°	°	°	°	°	°	°	°	°	°	°	°
Cheyenne, Wyo	22.8	25.7	24.3	20.7	23.9	27.6	20.1	30.2	29.4	20.9	23.8	22.2
Chicago, Ill	16.8	15.8	14.5	14.5	15.1	13.5	16.5	12.3	12.1	11.0	15.4	15.1
Chincoteague, Va	11.5	14.9	16.1	14.7	14.9	14.6	14.7	12.3	11.4	11.9	14.9	13.9
Cincinnati, Ohio	14.5	16.6	16.1	17.2	17.2	15.1	16.2	15.8	16.5	12.1	15.0	14.9
Cleveland, Ohio	15.4	17.1	17.1	17.3	18.7	16.2	15.5	16.3	16.7	13.9	16.0	14.6
Coleman City, Tex	28.9	[6]20.8	25.0	27.3	25.8	26.4	[7]24.4	26.4	(8)	....	....	....
Columbus, Ohio	14.8	15.4	16.2	19.3	20.0	18.0	19.0	19.9	20.0	14.5	15.6	14.3
Concho, Fort, Tex	20.6	21.1	25.4	29.0	27.1	25.6	23.7	27.5	23.8	13.3	23.0	22.2
Custer, Fort, Mont	(1)	(1)	(1)	(1)	(1)	(1)	(11)	35.5	37.3	25.1	27.9	23.1
Davenport, Iowa	22.1	22.6	20.4	23.4	20.2	18.4	19.8	19.8	23.0	16.4	21.1	21.1
Davis, Fort, Tex	28.8	27.5	24.0	29.2	30.5	31.2	26.7	29.2	27.0	25.9	26.4	24.6
Dayton, Wash	15.6	22.7	21.7	20.8	23.7	31.3	33.7	32.0	32.3	23.1	18.4	14.2
Deadwood, Dak	27.1	23.3	23.9	15.1	16.5	20.5	19.5	21.2	18.3	18.5	21.5	17.3
Delaware Breakwater, Del	10.7	18.2	18.5	11.9	13.1	11.3	12.6	11.6	10.0	9.9	13.0	11.6
Denver, Colo	24.0	24.3	25.0	22.4	24.5	24.2	23.9	24.7	24.6	20.8	25.0	18.8
Des Moines, Iowa	21.9	18.9	16.8	21.6	17.4	19.0	20.4	20.1	20.5	15.0	20.7	19.4
Detroit, Mich	13.2	13.3	17.2	19.6	20.1	17.4	13.0	20.0	18.0	13.4	14.8	14.5
Dodge City, Kans	24.9	22.5	22.4	23.4	25.2	24.1	28.1	19.0	22.4	17.2	26.7	21.9
Dubuque, Iowa	19.6	19.0	17.4	21.7	19.1	18.8	20.1	20.6	21.7	18.2	17.4	17.0
Duluth, Minn	20.5	21.9	20.7	14.8	12.6	17.9	17.2	13.6	14.3	11.2	16.4	16.7
Eastport, Me	16.1	16.1	15.5	13.8	14.7	17.7	15.3	17.1	14.8	11.1	12.5	16.5
Elliott, Fort, Tex	25.6	25.1	25.0	28.9	26.8	26.2	24.1	22.0	(1)	19.8	28.3	24.7
El Paso, Tex	29.9	25.5	26.8	35.1	35.9	36.3	32.3	26.7	26.1	27.2	27.6	24.8
Erie, Pa	13.9	17.9	16.9	15.2	17.4	15.9	18.8	14.9	15.2	13.2	12.4	12.6
Escanaba, Mich	21.2	21.4	26.5	17.9	16.7	17.1	17.1	19.8	18.5	18.9	16.0	13.5
Fort Smith, Ark	20.2	20.9	23.4	23.7	23.6	22.5	23.2	23.7	27.2	18.0	22.9	20.2
Galveston, Tex	13.6	11.8	11.1	9.5	10.1	9.5	10.3	11.2	9.9	9.3	10.6	11.3
Grand Haven, Mich	12.1	14.7	17.0	15.4	15.2	15.0	12.0	14.1	15.0	12.1	14.0	13.2
Grant, Fort, Ariz	21.4	20.3	20.9	25.8	25.6	27.0	21.8	20.6	21.1	21.2	20.7	17.8
Hatteras, N. C	10.5	12.2	14.0	12.4	11.0	10.0	11.6	10.4	9.1	10.2	13.3	13.6
Helena, Mont	15.9	17.6	18.3	18.1	19.0	20.9	22.0	21.3	21.1	12.1	17.5	13.1
Huron, Dak	23.3	24.2	19.6	22.8	19.6	24.6	23.3	22.7	23.3	18.0	27.3	24.0
Indianapolis, Ind	14.4	18.8	18.1	19.1	19.3	17.2	17.6	18.1	18.9	12.8	15.6	15.9
Indianola, Tex	16.6	15.4	13.1	12.2	12.2	12.9	13.1	14.5	11.4	11.7	12.4	13.0
Jacksonville, Fla	14.5	15.7	17.0	14.2	16.5	14.2	15.5	15.8	14.6	13.1	15.4	17.6
Keokuk, Iowa	18.4	17.4	17.0	20.4	18.4	15.5	18.0	18.0	21.6	13.9	17.8	18.6
Key West, Fla	8.9	7.8	10.5	11.5	10.1	12.3	12.8	12.3	10.6	8.6	6.7	7.6
Kittyhawk, N. C	13.2	15.1	16.8	14.7	14.5	13.3	14.5	9.9	9.8	9.2	14.8	12.8
Knoxville, Tenn	17.5	18.2	19.5	21.3	22.5	19.1	20.2	20.1	22.3	17.3	20.8	17.7
La Crosse, Wis	18.5	17.5	16.2	17.3	14.5	[10]16.0	14.8	16.1	14.7	12.4	17.6	14.9

Leavenworth, Kans	19.0	19.5	18.9	23.5	21.1	19.8	19.0	20.0	21.9	17.1	20.9	19.0
Lewiston, Idaho	12.8	15.3	22.9	20.2	23.0	28.5	30.9	29.6	27.2	18.3	16.1	12.5
Little Rock, Ark	14.7	16.6	17.9	18.7	20.0	19.5	19.6	18.6	22.2	14.8	17.2	17.5
Los Angeles, Cal	22.4	21.4	17.4	23.8	24.0	26.8	24.9	28.2	27.0	21.8	25.1	21.8
Louisville, Ky	14.4	18.2	17.9	18.9	20.5	17.6	18.0	18.2	20.6	15.2	16.8	17.5
Lynchburg, Va	12.7	15.7	17.5	19.0	21.6	19.1	19.7	20.7	16.8	14.3	18.7	17.2
Mackinaw City, Mich	14.0	17.4	22.4	15.7	16.4	18.8	16.0	16.4	14.0	11.7	13.2	11.9
Macon, Fort, N. C	11.8	12.7	15.5	14.4	14.0	10.1	11.1	11.5	9.2	9.7	13.4	12.9
Maginnis, Fort, Mont	13.6	15.4	17.9	17.6	14.6	17.6	19.1	27.4	27.8	30.1	22.2	16.8
Marquette, Mich	17.2	20.0	21.7	15.7	16.7	18.8	18.0	19.8	18.1	13.9	17.2	15.8
Memphis, Tenn	15.9	16.8	17.2	18.6	18.8	18.7	18.4	17.7	18.6	14.8	17.1	17.8
Milwaukee, Wis	17.5	15.3	15.1	14.3	14.9	14.5	17.1	15.3	14.1	10.9	16.2	15.1
Mobile, Ala	15.9	16.2	18.2	17.1	20.6	18.8	20.1	19.3	19.1	16.9	18.8	18.0
Montgomery, Ala	16.8	18.1	20.4	19.8	21.5	17.7	20.0	19.6	20.8	19.0	19.4	18.2
Moorhead, Minn	22.4	25.2	22.3	19.9	23.8	27.3	25.5	24.1	24.3	16.0	23.7	24.1
Mount Washington, N. H	19.4	21.9	21.8	14.3	15.4	13.2	11.7	11.4	14.7	13.2	16.1	22.7
Nashville, Tenn	15.9	17.6	18.8	18.2	19.7	17.0	17.4	16.8	19.5	14.4	18.9	18.8
New Haven, Conn	15.7	17.1	18.7	16.4	18.7	17.0	18.0	19.7	19.8	18.0	16.4	16.9
New London, Conn	14.3	13.6	16.6	14.7	17.2	16.0	17.2	17.7	18.2	17.5	17.4	17.4
New Orleans, La	15.1	15.1	15.8	12.7	13.9	12.6	13.3	13.1	13.5	13.1	15.0	15.0
New York City	11.9	12.1	16.4	15.1	17.5	15.1	15.1	15.5	14.5	14.6	14.3	13.5
Norfolk, Va	12.4	16.7	18.1	15.8	16.9	16.2	16.8	13.5	12.6	11.7	17.1	15.1
North Platte, Nebr	23.1	24.3	25.4	23.9	21.5	21.4	22.2	20.8	22.4	16.5	24.9	21.0
Olympia, Wash	10.0	14.1	19.3	15.7	22.3	27.4	27.9	16.2	18.9	14.4	8.4	10.5
Omaha, Nebr	20.8	18.9	20.5	23.0	18.3	19.4	19.1	17.9	17.5	15.1	23.3	19.5
Ooglaamie (Point Barrow), Alaska	14.8	17.2	17.2	15.5	13.6	9.4	9.7	([14])	......	......	......	......
Oswego, N. Y	16.0	15.0	17.3	15.4	19.6	19.5	18.4	15.8	16.3	14.9	15.0	15.2
Palestine, Tex	19.2	18.1	18.9	19.8	18.5	18.2	19.9	21.4	21.0	[6]16.8	17.1	17.1
Pensacola, Fla	14.1	13.2	16.7	14.0	16.0	11.6	13.8	14.6	15.0	15.2	15.7	16.0
Philadelphia, Pa	11.7	12.5	16.1	14.0	18.5	15.8	15.9	14.7	14.7	13.5	12.7	11.7
Pike's Peak, Colo	15.4	13.6	11.7	14.7	14.0	13.6	12.9	12.3	12.1	11.8	10.7	11.0
Pittsburg, Pa	15.0	17.7	18.7	20.0	22.2	19.2	20.8	21.0	20.7	16.3	17.3	16.5
Port Huron, Mich	14.9	16.7	18.1	16.2	17.4	18.2	18.0	18.9	16.4	14.1	15.0	14.9
Portland, Me	15.9	17.5	18.8	17.3	16.2	16.3	17.4	16.5	16.2	15.4	14.6	15.4
Portland, Oreg	11.8	16.2	20.7	16.9	21.3	22.5	23.0	19.6	19.7	12.6	10.8	12.2
Prescott, Ariz	28.4	26.9	25.3	29.5	33.0	38.5	26.1	27.1	30.0	29.1	34.7	21.3
Provincetown, Mass	11.2	11.8	14.3	14.3	16.0	18.3	18.6	16.1	14.8	12.5	12.6	13.4
Red Bluff, Cal	21.7	22.4	24.4	20.7	22.2	27.8	31.1	31.3	28.3	18.9	20.8	18.7
Rio Grande City, Tex	([1])	([1])	([1])	([1])	([1])	([1])	([1])	([1])	([1])	19.9	17.8	18.6
Rochester, N. Y	14.1	14.9	17.2	16.2	18.6	([15])	([1])	([1])	([1])	[16]14.2	14.4	13.6
Roseburg, Oreg	13.7	18.2	26.1	17.6	23.5	27.5	30.8	25.6	25.0	14.4	11.6	10.7
Sacramento, Cal	15.6	20.0	22.2	19.9	20.2	28.1	29.9	29.8	27.7	21.1	22.0	17.0
Saint Louis, Mo	16.1	17.2	16.5	21.0	20.5	18.2	18.9	18.9	21.2	13.3	17.7	18.0
Saint Michaels's, Fort, Alaska	11.6	12.9	13.0	12.2	12.3	11.7	12.1	9.1	7.7	8.2	14.1	13.1
Saint Paul, Minn	20.5	22.1	21.3	20.5	20.3	20.4	19.5	19.4	19.6	14.7	21.2	17.4
Saint Vincent, Minn	19.8	22.9	25.5	19.4	21.8	25.2	24.4	22.2	24.9	16.4	16.9	20.5
Salt Lake City, Utah	15.2	16.6	18.6	19.3	22.0	24.4	21.8	19.9	19.2	15.0	15.8	14.1

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[1] No record.
[6] Twenty-five days only.
[7] Twenty-three days only.
[8] Observations discontinued September 5, 1883.
[11] Observations recommenced July 21, 1883.
[13] Twenty-one days only.
[14] Station closed August 7, 1883.
[15] Station closed June 15, 1883.
[16] Station reopened October 10, 1883.

Table showing the mean daily range of temperature (in degrees Fahrenheit) at stations of the Signal Service, United States Army, &c.—Continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
	°	°	°	°	°	°	°	°	°	°	°	°
San Diego, Cal	18.3	16.5	9.7	15.0	13.8	13.3	11.5	12.4	15.8	14.4	17.5	16.7
Sandusky, Ohio	14.1	15.5	[17]14.9	([1])	([1])	([1])	([18])	14.3	13.4	12.1	15.3	12.4
Sandy Hook, N. J	10.0	11.4	14.6	13.0	14.3	16.0	15.7	14.8	12.4	10.8	12.2	11.7
Sanford, Fla	([2])	([2])	([2])	18.0	18.9	16.9	19.1	16.8	14.5	12.5	13.8	19.8
San Francisco, Cal	8.8	11.0	9.4	10.3	12.1	12.4	9.5	10.5	13.6	10.0	9.3	9.3
Savannah, Ga	14.7	16.0	17.2	14.0	15.8	14.6	14.8	14.0	14.0	13.9	17.8	15.9
Shaw, Fort, Mont	22.5	21.9	27.9	24.2	21.4	26.6	32.1	30.8	28.8	16.3	21.3	19.5
Shreveport, La	15.9	17.9	20.2	21.8	22.0	21.5	23.0	23.9	25.4	18.9	17.3	16.7
Sill, Fort, Ind. T	21.4	20.9	23.0	25.8	25.7	23.2	22.4	([1])	24.8	([1])	([1])	([1])
Sitka, Alaska	10.2	12.5	12.5	11.6	12.6	10.7	9.8	10.4	10.5	9.7	11.3	11.1
Smithville, N. C	13.1	14.0	16.4	12.2	15.7	12.1	12.0	12.9	11.7	12.9	15.2	15.6
Spokane Falls, Wash	[4]14.9	21.3	22.9	20.3	23.4	29.4	31.6	30.7	28.2	18.7	14.6	13.2
Springfield, Ill	16.8	17.6	20.1	22.5	20.4	17.0	18.8	18.5	22.5	13.8	18.8	18.4
Stockton, Fort, Tex	33.4	28.6	29.4	32.9	30.8	30.0	26.6	29.2	25.4	23.8	27.0	26.9
Tatoosh Island, Wash	....	....	....	....	....	....	....	....	(*b*)	9.0	5.9	6.3
Thomas, Camp, Ariz	25.8	23.2	24.7	33.6	35.5	37.3	27.2	27.0	31.8	34.9	34.4	23.3
Toledo, Ohio	14.1	15.2	18.5	17.5	18.2	15.3	17.0	17.3	16.6	13.8	16.0	14.1
Unalashka, Alaska	([1])	([1])	([1])	13.2	12.5	12.0	13.1	12.5	9.5	11.3	10.7	9.3
Verde, Fort, Ariz	28.7	29.3	28.0	34.6	34.9	37.3	26.9	28.5	36.0	([12])	....	....
Vicksburg, Miss	15.8	18.1	18.7	18.3	19.4	18.7	19.0	21.5	22.2	17.5	19.0	17.8
Washington City	12.4	16.3	19.8	18.9	22.1	20.6	20.5	19.8	18.5	16.2	16.8	15.0
West Las Animas, Colo	34.7	33.1	35.7	33.4	31.8	30.9	31.6	29.2	32.0	29.5	39.5	28.4
Wilmington, N. C	15.1	18.9	19.7	16.4	17.6	13.9	15.6	15.0	13.4	15.0	18.2	18.8
Yankton, Dak	20.3	[19]19.6	20.3	21.4	18.0	21.3	19.8	18.9	21.3	16.7	26.8	21.2
Yuma, Ariz	23.1	22.5	26.5	30.5	33.0	34.4	26.4	26.5	30.3	25.8	25.7	([1])

[1] No record.
[2] Record incomplete.
[4] Twenty-six days only.
[12] Reduced to a third-class station October 10, 1883.
[17] Station closed March 31, 1883.
[18] Station reopened July 20, 1883.
[19] Nineteen days only.
b Observations commenced October 1, 1883.

APPENDIX 33.

Table of comparative mean temperatures (in degrees Fahrenheit) at stations of the Signal Service, United States Army.

[The daily mean is obtained by dividing the sum of the three telegraphic observations by 3; the monthly mean by dividing the sum of the daily means by the number of days in the month.]

Stations.	January.			February.			March.			April.			May.			June.		
	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	23.1	23.3	+0.2	24.8	28.7	+3.9	32.9	30.1	−2.8	44.7	47.3	+2.6	59.3	59.1	−0.2	67.8	72.0	+4.2
Alpena, Mich	19.2	14.3	−4.9	19.5	16.1	−3.4	25.0	18.4	−6.6	36.2	35.1	−1.1	49.4	44.6	−4.8	59.4	58.7	−0.7
Apache, Fort, Ariz	33.9	31.9	−2.0	37.5	39.3	+1.8	44.5	47.5	+3.0	50.8	48.0	−2.8	57.4	56.4	−1.0	67.1	69.0	+1.9
Assinaboine, Fort, Mont	12.0	4.9	−7.1	20.4	9.5	−10.9	31.6	28.4	−3.2	41.5	41.6	+0.1	51.7	49.5	−2.2	62.5	62.7	+0.2
Atlanta, Ga	46.6	42.4	−4.2	48.2	49.8	+1.6	54.6	49.6	−5.0	61.3	61.2	−0.1	69.4	67.0	−2.4	76.4	75.9	−0.5
Atlantic City, N. J	32.4	30.1	−2.3	33.6	35.1	+1.5	38.9	35.0	−3.9	46.4	45.5	−0.9	57.2	56.7	−0.5	66.8	67.2	+0.4
Augusta, Ga	47.7	49.2	+1.5	50.2	56.7	+6.5	56.3	53.8	−2.5	63.9	64.5	+0.6	72.6	70.5	−2.1	79.2	79.0	−0.2
Baltimore, Md	34.8	32.3	−2.5	37.0	39.1	+2.1	42.4	39.4	−3.0	53.0	52.1	−0.9	64.6	64.0	−0.6	74.0	74.6	+0.6
Barnegat City, N. J	31.5	30.8	−0.7	32.4	35.2	+2.8	38.1	36.0	−2.1	45.5	46.0	+0.5	56.9	56.5	−0.4	66.5	67.8	+1.3
Bennett, Fort, Dak	12.0	5.5	−6.5	21.5	16.1	−5.4	28.1	29.8	+1.7	41.9	45.6	+3.7	58.8	51.3	−7.5	67.2	66.1	−1.1
Benton, Fort, Mont	12.6	11.7	−0.9	21.1	17.0	−4.1	28.9	33.4	+4.5	42.8	43.2	+0.4	55.3	49.7	−5.6	63.0	63.5	+0.5
Bismarck, Dak	7.1	−2.6	−9.7	13.2	7.8	−5.4	22.0	21.4	−0.6	39.9	41.3	+1.4	55.5	50.0	−5.5	63.0	64.8	+1.8
Block Island, R. I	30.5	29.9	−0.6	33.0	32.1	−0.9	37.4	32.6	−4.8	42.8	42.6	−0 2	51.0	52.6	+1.6	61.5	64.4	+2.9
Boise City, Idaho	30.9	21.0	−9.9	36.2	21.3	−14.9	42.7	46.2	+3.5	50.6	44.2	−6.4	56.1	56.0	−0.1	65.6	68.6	+3.0
Boston, Mass	26.5	25.1	−1.4	28.0	29.2	+1.2	34.5	31.3	−3.2	43.9	44.3	+0.4	56.6	55.5	−1.1	66.0	69.0	+3.0
Brownsville, Tex	60.1	55.4	−4.7	62 6	58.8	−4.0	69.3	67.5	−1.8	74.9	74.3	−0.6	79.8	79.2	−0.6	83.5	83.3	−0.2
Buffalo, N. Y	25.4	20.7	−4.7	25.5	23.3	−2.2	31.4	24.0	−7.4	41.5	40.2	−1.3	54.1	50.0	−4.1	64.6	63.8	−0.8
Buford, Fort, Dak	9.8	−4.5	−14.3	12.7	4.9	−7.8	23.0	22.1	−0.9	40.8	41.2	+0.4	54.4	49.5	−4.9	62.5	64.8	+2.3
Cairo, Ill	36.4	32.3	−4.1	40.9	38.8	−2.1	47.9	43.8	−4.1	58.3	59.9	+1.6	68.4	65.2	−3.2	75.5	75.9	+0.4
Cape Henry, Va	41.3	36.9	−4.4	42.5	45.2	+2.7	47.5	42.9	−4.6	54.3	53.1	−1.2	64.1	63.6	−0.5	73.5	73.9	+0.4
Cape May, N. J	34.3	33.8	−0.5	35.1	39.4	+4.3	40.3	38.8	−1.5	48.1	48.5	+0.4	58.5	60.1	+1.6	68.3	68.6	+0.3
Cedar Keys, Fla	60.2	58.5	−1.7	60.5	66.9	+6.4	64.8	61.3	−3.5	70.4	72.6	+2.2	75.9	75.1	−0.8	81.0	82.1	+1.1
Charleston, S. C	49.4	51.4	+2.0	52.3	57.0	+4.7	58.1	53.8	−4.3	64.5	64.0	−0.5	72.7	70.8	−1.9	79.8	80.3	+0.5
Charlotte, N. C	42.7	39.4	−3.3	45.6	48.5	+2.9	51.6	46.6	−5.0	59.1	59.0	−0.1	69.0	68.3	−0.7	76.8	77.2	+0.4
Chattanooga, Tenn	44.6	41.6	−3 0	45.4	49.3	+3.9	52.3	49.3	−3.0	59.9	61.4	+1.5	69.2	66.0	−3.2	75.6	76.1	+0.5
Cheyenne, Wyo	25.4	21.0	−4.4	29.0	18.9	−10.1	33.1	37.5	+4.4	39.9	37.1	−2.8	51.3	46.3	−5.0	61.8	57.5	−4.3
Chicago, Ill	26.4	16.3	−10.1	29.6	23.0	−6.6	35.5	31.4	−4.1	45.9	45.6	−0.3	57.3	52.1	−5.2	65.7	64.1	−1.6
Chincoteague, Va	33.9	33.4	−0.5	37.4	40.2	+2.8	42.4	38.7	[illegible]3.7	49.7	49.1	−0.6	59.7	60.0	+0.3	69.8	70.6	+1.8
Cincinnati, Ohio	34.8	30.9	−3.9	37.8	38.3	+0.5	43.9	40.1	−3.8	54.6	55.1	+0.5	66.0	62.6	−3.4	74.3	73.6	−0.7
Cleveland, Ohio	27.3	22.0	−5.3	28.5	27.5	−1.0	34.5	28.4	−6.1	45.3	44.0	−1.3	58.6	54.2	−4.4	67.7	67.3	−0.4

Table of comparative mean temperatures (in degrees Fahrenheit) at stations of the Signal Service, United States Army—Continued.

Stations.	January.			February.			March.			April.			May.			June.		
	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or —.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Columbus, Ohio	31.5	26.6	−4.9	34.5	33.9	−0.6	40.7	35.0	−5.7	50.3	50.4	+0.1	64.6	59.5	−5.1	70.8	69.8	−1.0
Concho, Fort, Tex	44.6	40.7	−3.9	49.3	43.9	−5.4	58.9	55.4	−3.5	65.8	63.6	−2.2	74.0	71.5	−2.5	80.3	80.5	+0.2
Davenport, Iowa	22.6	15.5	−7.1	28.0	24.4	−3.6	35.3	34.7	−0.6	48.7	51.7	+3.0	62.0	57.0	−5.0	70.7	68.3	−2.4
Davis, Fort, Tex	45.2	42.0	−3.2	48.2	45.9	−2.3	55.0	53.6	−1.4	61.3	58.2	−3.1	69.0	68.3	−0.7	75.0	75.8	+0.8
Dayton, Wash	32.5	26.5	−6.0	34.3	17.8	−16.5	42.1	45.6	+3.5	49.2	46.1	−3.1	54.5	56.4	+1.9	62.0	65.0	+3.0
Deadwood, Dak	23.6	15.8	−7.8	26.6	19.3	−7.3	32.3	32.5	+0.2	40.5	37.6	−2.9	50.4	43.3	−7.1	60.4	58.0	−2.4
Delaware Breakwater, Del	32.9	31.6	−1.3	38.4	37.9	−0.5	41.6	37.0	−4.6	48.6	47.3	−1.3	60.0	58.6	−1.4	68.3	69.1	+0.8
Denver, Colo	27.1	28.4	+1.3	33.0	22.0	−11.0	39.4	43.8	+4.4	46.3	45.6	−0.7	56.9	54.2	−2.7	67.0	64.9	−2.1
Des Moines, Iowa	23.9	8.8	−15.1	28.4	19.1	−9.3	35.9	32.9	−3.0	48.8	51.8	+3.0	62.9	55.8	−7.1	70.0	67.5	−2.5
Detroit, Mich	25.1	21.7	−3.4	27.1	26.2	−0.9	33.1	30.1	−3.0	44.5	46.2	+1.7	58.1	54.0	−4.1	67.2	67.9	+0.7
Dodge City, Kans	27.3	22.1	−5.2	34.8	26.2	−8.6	42.3	40.8	−1.5	53.2	53.0	−0.2	63.7	60.5	−3.2	73.4	70.5	−2.9
Dubuque, Iowa	20.7	10.2	−10.5	26.0	18.8	−7.2	33.7	30.9	−2.8	47.6	49.7	+2.1	61.9	54.6	−7.3	68.7	67.7	−1.0
Duluth, Minn	12.7	1.8	−10.9	18.1	12.9	−5.2	24.8	22.6	−2.2	38.1	40.3	+2.2	49.1	45.5	−3.6	58.3	59.4	+1.1
Eastport, Me	20.1	16.2	−3.9	22.7	19.9	−2.8	29.1	23.6	−5.5	37.7	38.0	+0.3	47.4	47.4	±0.0	54.8	57.6	+2.8
Elliott, Fort, Tex	33.3	28.0	−5.3	36.9	31.6	−5.3	46.0	44.8	−1.2	56.7	55.8	−0.9	63.7	63.0	−0.7	74.1	71.5	−2.6
El Paso, Tex	46.9	42.5	−4.4	50.6	49.2	−1.4	57.4	56.5	−0.9	64.6	60.8	−3.8	73.3	71.5	−1.8	81.0	82.7	+1.7
Erie, Pa	28.7	24.1	−4.6	28.9	27.3	−1.6	34.3	28.6	−4.7	43.8	44.1	+0.3	58.1	53.9	−4.2	67.6	67.1	−0.5
Escanaba, Mich	15.6	9.0	−6.6	17.3	12.4	−4.9	23.0	17.4	−5.6	35.5	36.2	+0.7	49.8	45.1	−4.7	60.6	59.4	−1.2
Galveston, Tex	53.4	51.0	−2.4	57.3	55.3	−2.0	63.9	62.4	−1.5	69.4	70.6	+1.2	76.5	75.6	−0.9	82.5	82.9	+0.4
Grand Haven, Mich	26.0	20.4	−5.6	26.6	23.6	−3.0	31.5	27.3	−4.2	43.4	44.4	+1.0	55.9	50.6	−5.3	64.6	62.1	−2.5
Grant, Fort, Ariz	43.5	40.5	−3.0	46.2	43.9	−2.3	52.6	52.2	−0.4	58.7	55.7	−3.0	67.5	64.5	−3.0	76.1	77.7	+1.6
Hatteras, N. C	43.9	42.8	−1.1	46.4	48.2	+1.8	49.8	47.1	−2.7	55.0	56.3	+1.3	66.0	64.8	−1.2	74.5	75.6	+1.1
Helena, Mont	14.9	18.5	+3.6	25.1	14.1	−11.0	35.2	34.2	−1.0	41.6	40.4	−1.2	51.4	49.8	−1.6	60.3	61.8	+1.5
Huron, Dak	17.6	2.9	−14.7	24.7	13.0	−11.7	30.0	27.5	−2.5	44.2	44.7	+0.5	51.8	50.4	−1.4	64.7	64.7	±0.0
Indianapolis, Ind	30.5	24.5	−6.0	33.9	32.0	−1.9	40.6	36.1	−4.5	52.6	53.3	+0.7	64.6	60.9	−3.7	72.8	71.5	−1.3
Indianola, Tex	53.8	49.2	−4.6	58.2	54.0	−4.2	65.2	64.0	−1.2	69.9	71.3	+1.4	76.3	76.2	−0.1	82.1	82.1	±0.0
Jacksonville, Fla	56.1	57.9	+1.8	57.6	64.3	+6.7	62.9	60.4	−2.5	68.9	70.1	+1.2	75.5	73.9	−1.6	80.9	80.9	±0.0
Keokuk, Iowa	26.1	15.5	−10.6	31.4	24.9	−6.5	38.2	35.3	−2.9	51.1	54.0	+2.9	63.8	59.8	+4.0	72.8	69.7	−3.1
Key West, Fla	70.2	72.3	+2.1	71.6	75.0	+3.4	73.7	72.7	−1.0	76.8	79.2	+2.4	80.0	79.5	−0.5	83.3	83.8	+0.5
Kitty Hawk, N. C	42.9	40.4	−2.5	43.3	47.0	+3.7	48.5	44.3	−4.2	54.5	53.3	−1.2	63.8	63.0	−0.8	73.2	75.0	+1.8
Knoxville, Tenn	38.2	38.1	−0.1	41.8	45.4	+3.6	48.0	44.8	−3.2	57.3	58.5	+1.2	66.7	64.2	−2.5	73.4	73.6	+0.2
La Crosse, Wis	17.8	4.9	−12.9	23.5	17.0	−6.5	32.2	27.2	−5.0	46.6	48.5	+1.9	61.2	54.0	−7.2	68.7	68.3	−0.4
Leavenworth, Kans	27.1	19.4	−7.7	33.2	27.9	−5.3	41.0	39.4	−1.6	53.3	56.3	+3.0	65.5	60.8	−4.7	74.3	71.1	−3.2
Lewiston, Idaho	33.1	26.9	−6.2	34.8	21.6	−13.2	42.3	46.4	+4.1	50.5	49.7	−0.8	57.0	58.7	+1.7	65.8	69.0	+3.2
Little Rock, Ark	45.4	40.5	−4.9	49.2	45.0	−4.2	54.6	52.5	−2.1	63.5	63.2	−0.3	71.0	68.2	−2.8	78.6	77.7	−0.9
Los Angeles, Cal	51.9	53.5	+1.6	53.8	52.3	−1.5	55.3	56.7	+1.4	58.0	57.3	−0.7	61.7	62.1	+0.4	64.8	68.8	+4.0

Louisville, Ky	35.4	33.2	−2.2	38.9	40.1	+1.2	44.7	41.6	−3.1	55.4	57.2	+1.8	67.5	63.8	−3.7	75.0	73.6	−1.4
Lynchburg, Va	37.3	34.9	−2.4	40.1	44.5	+4.4	46.1	42.4	−3.7	56.0	55.3	−0.7	66.4	67.6	+1.2	74.6	75.7	+1.1
Macon, Fort, N. C	45.0	43.9	−1.1	48.2	49.8	+1.6	51.8	48.0	−3.8	56.7	57.7	+1.0	67.8	67.0	−0.8	75.6	75.8	+0.2
Marquette, Mich	18.2	12.3	−5.9	19.6	15.0	−4.6	24.9	17.9	−7.0	37.2	36.5	−0.7	50.1	44.0	−6.1	59.1	57.3	−1.8
Memphis, Tenn	41.5	39.5	−2.0	45.1	44.1	−1.0	52.2	49.3	−2.9	61.0	63.4	+2.4	71.1	68.4	−2.7	78.3	78.1	−0.2
Milwaukee, Wis	21.6	12.8	−8.8	25.1	20.2	−4.9	30.8	29.1	−1.7	42.0	43.0	+1.0	53.8	49.6	−4.2	63.4	62.1	−1.3
Mobile, Ala	51.0	52.7	+1.7	54.5	59.6	+5.1	60.2	57.7	−2.5	66.9	68.8	+1.9	74.6	72.9	−1.7	80.9	81.3	+0.4
Montgomery, Ala	49.6	49.8	+0.2	52.3	58.2	+5.9	58.1	54.8	−3.3	64.6	65.9	+1.3	73.4	70.6	−2.8	79.8	79.2	−0.6
Moorhead, Minn	1.2	−9.7	−10.9	11.8	2.9	−8.9	19.1	14.1	−5.0	36.6	39.3	+2.7	55.4	48.1	−7.3	64.0	61.8	−2.2
Mount Washington, N. H	5.7	0.8	−4.9	6.5	2.5	−4.0	11.2	0.9	−10.3	20.2	20.0	−0.2	33.5	34.0	+0.5	43.2	46.6	+3.4
Nashville, Tenn	39.6	38.4	−1.2	43.3	44.6	+1.3	50.0	46.8	−3.2	59.9	60.2	+0.3	70.0	66.3	−3.7	77.5	76.1	−1.4
New Haven, Conn	28.3	23.8	−4.5	29.9	27.6	−2.3	36.1	29.9	−6.2	45.8	44.2	−1.6	58.5	56.5	−2.0	67.8	68.3	+0.5
New London, Conn	28.9	26.6	−2.3	29.6	30.4	+0.8	35.7	32.2	−3.5	45.1	45.2	+0.1	56.4	56.6	+0.2	65.6	67.4	+[illegible]
New Orleans, La	54.6	56.8	+2.2	58.0	62.9	+4.9	63.1	61.7	−1.4	68.5	71.4	+2.9	75.1	74.3	−0.8	81.1	80.7	−0.4
New York City	30.3	27.8	−2.5	31.4	31.4	±0.0	37.1	33.6	−3.5	47.0	46.6	−0.4	59.1	59.1	±0.0	68.6	69.5	+0.9
Norfolk, Va	41.0	39.1	−1.9	42.6	46.8	+4.2	48.2	44.8	−3.4	56.4	55.8	−0.6	66.7	66.3	−0.4	75.6	76.9	+1.3
North Platte, Nebr	21.3	14.8	−6.5	28.5	16.8	−11.7	35.7	36.3	+0.6	47.3	47.6	+0.3	59.1	53.6	−5.5	68.2	66.7	−1.5
Olympia, Wash	38.2	35.9	−2.3	40.4	33.6	−6.8	44.1	45.9	+1.8	47.7	46.8	−0.9	52.6	53.3	+0.7	58.3	59.4	+1.1
Omaha, Nebr	22.0	1.9	−10.1	28.1	21.7	−6.4	35.8	34.6	−1.2	49.7	53.6	+3.9	62.8	57.3	−5.5	71.8	69.1	−2.7
Oswego, N. Y	26.4	23.0	−3.4	26.4	26.5	+0.1	32.6	26.1	−6.5	43.0	41.4	−1.6	55.0	51.6	−3.4	64.3	65.4	+1.1
Pensacola, Fla	56.5	54.5	−2.0	57.3	60.9	+3.6	62.6	58.0	−4.6	68.1	68.9	+0.8	74.4	72.2	−2.2	80.7	80.1	−0.6
Philadelphia, Pa	31.7	30.1	−1.6	33.5	36.6	+3.1	30.7	37.6	−2.1	49.8	50.0	+0.2	62.1	62.4	+0.3	71.2	73.7	+2.5
Pike's Peak, Colo	3.2	−1.9	−5.1	3.6	4.4	+0.8	7.2	13.0	+5.8	13.0	12.1	−0.9	22.4	19.5	−2.9	33.1	31.3	−1.8
Pittsburg, Pa	31.1	28.6	−2.5	32.6	35.1	+2.5	38.7	34.5	−4.2	49.7	50.3	+0.6	62.1	60.7	−1.4	70.9	70.5	−0.4
Port Huron, Mich	22.9	16.9	−6.0	24.8	20.2	−4.6	30.2	23.6	−6.6	41.1	40.0	−1.1	53.9	48.5	−5.4	62.7	63.1	+0.4
Portland, Me	23.4	21.4	−2.0	26.0	25.7	−0.3	33.0	28.9	−4.1	43.0	44.7	+1.7	54.9	54.9	±0.0	63.8	66.4	+2.6
Portland, Oreg	39.7	37.5	−2.2	42.7	33.0	−9.7	46.9	50.4	+3.5	51.6	49.2	−2.4	55.8	57.4	+1.6	61.6	63.4	+1.8
Prescott, Ariz	31.7	34.5	+2.8	37.6	37.6	±0.0	44.1	47.4	+3.3	50.9	47.9	−3.0	57.4	56.5	−0.9	66.8	69.0	+2.2
Red Bluff, Cal	46.1	41.2	−4.9	49.4	45.1	−4.3	54.1	58.3	+4.2	59.7	56.1	−3.6	66.4	64.3	−2.1	76.9	80.3	+3.4
Rochester, N. Y	24.8	20.6	−4.2	25.3	23.3	−2.0	31.3	24.0	−7.3	43.1	40.8	−2.3	57.0	51.4	−5.6	66.0	(*)	(*)
Roseburg, Oreg	40.8	37.5	−3.3	43.2	37.2	−6.0	46.7	51.3	+4.6	51.0	48.8	−2.2	54.7	56.8	+2.1	61.1	63.9	+2.8
Sacramento, Cal	46.6	41.9	−4.7	50.5	46.0	−4.5	54.3	56.9	+2.6	58.2	56.0	−2.2	63.2	62.6	−0.6	69.0	72.6	+3.6
Saint Louis, Mo	33.1	23.2	−9.9	36.5	31.3	−5.2	43.5	38.4	−5.1	55.1	55.8	+0.7	66.5	61.8	−4.7	74.9	71.9	−3.0
Saint Michaels, Fort, Alaska	7.3	16.9	+9.6	−3.9	10.3	+14.2	7.6	16.4	+8.8	19.4	14.1	−5.3	32.2	37.1	+4.9	46.4	46.5	+0.1
Saint Paul, Minn	15.1	11.1	−14.0	19.7	12.1	−7.6	28.9	24.4	−4.5	44.4	45.1	+0.7	59.1	52.2	−6.9	67.2	65.1	−2.1
Saint Vincent, Minn	−3.0	−13.4	−10.4	7.8	−1.7	−9.5	15.7	8.7	−7.0	32.2	34.0	+1.8	53.2	45.8	−7.4	60.8	60.6	−0.2
Salt Lake City, Utah	29.1	24.9	−4.2	34.2	24.2	−10.0	41.0	47.0	+6.0	49.1	45.8	−3.3	57.2	57.0	−0.2	67.3	70.5	+3.2
San Diego, Cal	53.7	53.4	−0.8	54.4	53.9	−0.5	55.5	57.4	+1.9	57.8	57.4	−0.4	61.0	60.6	−0.4	64.2	66.6	+2.4
Sandusky, Ohio	30.1	22.9	−7.2	32.3	28.6	−3.7	38.1	31.2	−6.9	47.7	(*)	(*)	60.4	(*)	(*)	67.6	(*)	(*)
Sandy Hook, N. J	31.2	28.4	−2.8	31.9	32.6	+0.7	37.7	34.4	−3.3	45.9	46.7	−9.8	58.8	58.6	−0.2	68.5	70.3	+1.8
San Francisco, Cal	51.0	46.5	−4.5	52.2	47.9	−4.3	53.4	53.0	−0.4	54.5	52.4	−2.1	56.2	56.8	+0.6	58.4	59.9	+1.5
Savannah, Ga	51.8	54.2	+2.4	53.9	60.1	+6.2	59.7	57.1	−2.6	66.5	67.7	+1.2	73.5	72.7	−0.8	80.3	81.2	+0.9
Shaw, Fort, Mont	15.8	15.6	−0.2	26.0	17.2	−8.8	34.0	33.0	−1.0	39.2	39.6	+0.4	49.8	47.4	−2.4	58.6	59.7	+1.1
Shreveport, La	46.8	43.2	−3.6	51.7	48.1	−3.6	59.1	56.5	−2.6	65.8	66.6	+0.8	73.8	73.4	−0.4	80.7	81.0	+0.3
Sill, Fort, Ind. T	37.4	32.5	−4.9	43.7	36.7	−7.0	53.4	47.9	−5.5	62.4	60.6	−1.8	70.1	67.3	−2.8	77.9	76.8	−1.1
Sitka, Alaska	34.8	37.3	+2.5	30.8	35.6	+4.8	30.8	42.7	+11.9	41.2	43.7	+2.5	46.4	47.9	+1.5	51.4	50.4	−1.0
Smithville, N. C	47.7	45.8	−1.9	49.2	52.1	+2.9	54.9	48.8	−6.1	61.0	59.2	−1.8	69.4	68.5	−0.9	77.2	77.2	±0.0
Spokane Falls, Wash	22.8	23.8	+1.0	27.8	19.8	−8.0	39.0	40.8	+1.8	46.6	46.0	−0.6	53.8	55.3	+1.5	62.0	65.3	+3.3
Springfield, Ill	32.4	20.9	−11.5	36.2	29.2	−6.7	40.5	38.3	−2.2	53.0	54.2	+1.2	65.5	60.1	−5.4	72.1	69.7	−2.4
Stockton, Fort, Tex	44.8	40.7	−4.1	49.0	45.4	−3.6	57.3	54.7	−2.6	65.0	61.5	−3.5	73.1	70.6	−2.5	79.0	79.5	+0.5

*No record.

Table of comparative mean temperatures (in degrees Fahrenheit) at stations of the Signal Service, United, States Army—Continued.

Stations.	January.			February.			March.			April.			May.			June.		
	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Thomas, Camp, Ariz	39.8	40.2	+0.4	46.6	46.3	−0.3	52.4	56.4	+4.0	60.9	58.0	−2.9	69.1	67.9	−1.2	78.6	81.7	+3.1
Toledo, Ohio	28.2	22.3	−5.9	30.0	28.3	−1.7	36.3	31.7	−4.6	47.7	47.4	−0.3	59.2	55.8	−3.4	69.8	69.7	−0.1
Vicksburg, Miss	48.5	47.7	−0.8	52.7	54.0	+1.3	59.2	57.1	−2.1	65.6	66.2	+0.6	73.7	71.0	−2.7	80.1	80.0	−0.1
Washington City	33.5	29.6	−3.9	36.0	37.5	+1.5	42.3	37.6	−4.7	52.8	50.9	−1.9	64.4	63.6	−0.8	73.6	74.4	+0.8
Wilmington, N. C	47.0	47.2	+0.2	49.0	54.7	+5.7	54.8	50.8	−4.0	61.7	61.3	−0.4	69.6	69.0	−0.6	76.8	77.2	+0.4
Yankton, Dak	16.5	7.4	−9.1	21.5	17.2	−4.3	29.8	29.5	−0.3	44.9	47.6	+2.7	60.2	52.7	−7.5	68.5	67.0	−1.5
Yuma, Ariz	53.8	51.7	−2.1	59.5	55.6	−3.9	64.7	67.3	+2.6	69.5	67.1	−2.4	77.6	74.4	−3.2	86.0	87.3	+1.3

Table of comparative mean temperatures (in degrees Fahrenheit) at stations of the Signal Service, United States Army—Continued.

Stations.	July.			August.			September.			October..			November.			December.		
	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	72.5	72.8	+0.3	70.8	69.9	−0.9	63.2	61.2	−2.0	51.3	50.9	−0.4	38.4	44.0	+5.6	28.3	31.0	+2.7
Alpena, Mich	66.0	63.2	−2.8	65.0	61.7	−3.3	57.0	52.8	−4.2	45.4	42.7	−2.7	32.0	33.6	+1.6	23.6	23.2	−0.4
Apache, Fort, Ariz	72.3	70.3	−2.0	70.1	69.4	−0.7	63.2	63.8	+0.6	53.0	50.6	−2.4	40.2	41.1	+0.9	36.0	38.9	+2.9
Assinaboine, Fort, Mont	67.4	66.2	−1.2	65.9	66.0	+0.1	53.8	54.2	+0.4	39.0	38.9	−0.1	26.3	26.1	−0.2	19.6	22.3	+2.7
Atlanta, Ga	78.7	79.8	+1.1	75.6	75.1	−0.5	70.9	70.8	−0.1	63.1	65.3	+2.2	51.0	53.6	+2.6	44.8	48.0	+3.2
Atlantic City, N. J	72.4	73.0	+0.6	72.2	70.5	−1.7	67.3	65.1	−2.2	57.1	55.6	−1.5	44.0	45.9	+1.9	35.4	37.2	+1.8
Augusta, Ga	82.0	83.4	+1.4	79.6	79.9	+0.3	74.9	73.8	−1.1	64.1	68.2	+4.1	53.4	57.4	+4.0	47.1	53.2	+6.1
Baltimore, Md	78.7	76.8	−1.9	75.5	72.9	−2.6	68.0	65.1	−2.9	57.7	57.5	−0.2	44.9	48.2	+3.3	36.8	39.0	+2.2
Barnegat City, N. J	72.3	72.9	+0.6	71.8	70.4	−1.4	66.7	64.4	−2.3	56.3	55.4	+0.9	43.4	46.3	+2.9	34.5	37.2	+2.7
Bennett, Fort, Dak	71.7	70.5	−1.2	73.8	69.6	−4.2	60.2	58.6	−1.6	46.0	42.8	−3.2	28.0	30.4	+2.4	20.8	19.6	−1.2
Benton, Fort, Mont	69.8	69.5	−0.3	68.1	70.2	+2.1	56.2	58.2	+2.0	44.3	41.1	−3.2	25.5	30.7	+5.2	21.2	28.0	+6.8
Bismarck, Dak	70.1	67.1	−3.0	68.3	65.9	−2.4	55.8	56.1	+0.3	43.3	40.4	−2.9	24.6	26.1	+1.5	14.2	14.3	+0.1
Block Island, R. I	69.0	69.9	+0.9	69.5	67.2	−2.3	65.5	61.5	−4.0	56.3	52.4	−3.9	44,4	46.0	+1.6	36.1	35.0	−1.1
Boisé City, Idaho	73.0	73.2	+0.2	71.7	73.2	+1.5	60.4	62.0	+1.6	47.7	44.5	−3.2	37.8	39.8	+2.0	32.2	(*)	(*)
Boston, Mass	71.6	71.3	−0.3	69.7	67.6	−2.1	62.4	59.3	−3.1	52.4	47.4	−5.0	39.0	42.5	+3.5	29.8	28.7	−1.1
Brownsville, Tex	84.7	83.0	−1.7	83.3	83.6	+0.3	79.8	77.7	−2.1	75.5	78.5	+3.0	64.9	69.2	+4.3	60.2	61.9	+1.7
Buffalo, N. Y	70.2	67.2	−3.0	69.7	65.8	−3.9	62.3	57.5	−4.8	51.0	48.4	−2.6	36.8	43.5	+6.7	28.7	34.0	+5.3
Buford, Fort, Dak	67.6	66.4	−1.2	67.1	64.9	−2.2	54.5	53.5	−1.0	42.2	38.9	−3.3	24.4	22.4	−2.0	9.1	9.9	+0.8
Cairo, Ill	79.7	77.7	−2.0	78.2	74.8	−3.4	69.3	68.0	−1.3	59,6	60.2	+0.6	45.5	50.0	+4.5	38.1	42.1	+4.0
Cape Henry, Va	78.2	77.5	−0.7	76.4	75.5	−0.9	72.1	70.3	−1.8	63.0	62.5	−0.5	51.4	53.3	+1.9	43.2	45.1	+1.9
Cape May, N. J	73.6	73.7	+0.1	73.3	71.6	−1.7	68.1	66.2	−1.9	59.0	56.9	−2.1	46.0	48.3	+2.3	37.2	39.7	+2.5
Cedar Keys, Fla	82.4	83.8	+1.4	81.2	83.7	+2.5	79.3	79.7	+0.4	73.3	76.3	+3.0	63.1	65.8	+2.7	58.8	62.5	+3.7
Charleston, S. C	82.8	83.4	+0.6	80.9	79.9	−1.0	76.2	74.3	−1.9	66.7	69.0	+2.3	56.9	59.4	+2.5	50.5	56.0	+5.5
Charlotte, N. C	79.5	80.5	+1.0	76.3	76.9	+0.6	71.4	68.5	−2.9	63.4	61.6	−1.8	49.0	52.4	+3.4	42.0	46.9	+4.9
Chattanooga, Tenn	78.3	79.2	+0.9	76.0	74.4	−1.6	69.8	70.4	+0.6	63.1	64.1	+1.0	49.3	51.7	+2.4	43.0	46.2	+3.2
Cheyenne, Wyo	67.4	64.0	−3.4	65.5	63.9	−1.6	55.4	55.3	−0.1	44.3	39.3	−5.0	32.8	38.2	+5.4	27.3	29.6	+2.3
Chicago, Ill	72.5	71.0	−1.5	72.2	68.3	−3.9	63.8	60.7	−3.1	52.6	51.8	−0.8	38.0	41.5	+3.5	28.7	30.1	+1.4
Chincoteague, Va	74.6	74.9	+0.3	73.2	72.4	−0.8	71.1	67.5	−3.6	61.8	58.6	−3.2	47.2	49.1	+1.9	37.7	40.9	+3.2
Cincinnati, Ohio	78.5	76.7	−1.8	76.0	73.1	−2.9	67.9	66.7	−0.2	57.5	58.5	+1.0	44.1	48.5	+4.4	36.5	39.0	+2.5
Cleveland, Ohio	72.0	70.7	−1.3	70.8	66.9	−3.9	63.8	59.5	−4.3	53.2	51.9	−1.3	38.8	43.0	+4.2	29.7	32.2	+2.5
Columbus, Ohio	76.3	73.4	−2.9	73.1	69.5	−3.6	66.0	63.1	−2.9	56.7	53.6	−3.1	41.1	43.4	+2.3	31.9	34.5	+2.6
Concho, Fort, Tex	82.3	81.1	−1.2	79.0	81.9	+2.9	72.8	71.8	−1.0	65.0	65.8	+0.8	50.5	55.1	+4.6	45.8	48.0	+2.2
Davenport, Iowa	75.4	73.7	−1.7	73.9	69.8	−4.1	64.2	60.9	−3.3	52.7	50.3	−2.4	36.6	41.7	+5.1	27.8	31.1	+3.3
Davis, Fort, Tex	75.5	73.8	−1.7	69.6	72.9	+3.3	65.2	67.0	+1.8	59.7	62.7	+3.0	47.5	51.6	+4.1	45.1	46.7	+1.6

*No record.

Table of comparative mean temperatures (in degrees Fahrenheit) at stations of the Signal Service, United States Army—Continued.

Stations.	July.			August.			September.			October.			November.			December.		
	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or —.	Mean to include 1882.	Mean for 1883.	Departure + or —.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Dayton, Wash. T	67.4	69.9	+2.5	65.0	68.2	+3.2	58.8	59.9	+1.1	48.0	45.9	—2.1	34.7	43.0	+8.3	33.6	32.8	—0.8
Deadwood, Dak	65.0	62.1	—2.9	67.3	62.6	—4.7	53.4	53.9	+0.5	42.2	40.1	+2.1	30.8	34.2	+3.4	22.5	26.5	+4.0
Delaware Breakwater, Del	73.4	73.6	+0.2	72.5	71.7	—0.8	70.8	66.7	—4.1	61.5	58.2	—3.3	47.0	48.3	+1.3	37.3	39.6	+2.3
Denver, Colo	72.1	71.2	—0.9	70.5	71.2	—0.7	60.7	61.7	+1.0	50.2	46.7	—3.5	35.5	42.9	+7.4	30.4	32.5	+2.1
Des Moines, Iowa	73.9	73.6	—0.3	74.5	69.7	—4.8	63.9	59.4	—4.5	53.8	48.7	—5.1	36.8	39.0	+2.2	23.9	27.3	+3.4
Detroit, Mich	71.7	71.0	—0.7	70.5	67.7	—2.8	62.5	59.7	—2.8	51.7	50.8	—0.9	36.9	43.8	+6.9	28.2	33.5	+5.3
Dodge City, Kans	77.5	76.2	—1.3	75.8	71.7	—4.1	67.3	64.1	—3.2	55.4	50.8	—4.6	38.1	41.8	+3.7	31.2	34.8	+3.6
Dubuque, Iowa	74.8	72.5	—2.3	72.8	68.5	—4.3	62.6	58.8	—3.8	51.5	48.7	—2.8	34.8	38.5	+3.7	25.7	27.0	+1.3
Duluth, Minn	66.8	66.0	—0.8	66.3	62.8	—3.5	56.3	54.6	—1.7	45.0	44.1	—0.9	28.9	29.7	+0.8	16.8	15.7	—1.1
Eastport, Me	60.6	60.2	—0.4	60.6	62.2	+1.6	55.7	55.3	—0.4	47.4	44.7	—2.7	35.0	38.8	+3.8	25.1	23.4	—1.7
Elliott, Fort, Tex	74.6	76.1	+1.5	73.9	74.5	+0.6	66.9	66.1	—0.8	57.4	55.2	—2.2	38.0	46.5	+8.5	34.5	38.8	+3.3
El Paso, Tex	81.8	80.6	—1.2	78.6	79.3	+0.7	72.8	70.7	—2.1	64.3	61.1	—3.2	50.5	50.2	—0.3	46.3	45.7	—0.6
Erie, Pa	72.7	69.9	—2.8	71.0	67.4	—3.6	64.4	58.8	—5.6	53.5	52.1	—1.4	40.1	43.8	+3.7	32.4	33.3	+0.9
Escanaba, Mich	67.0	63.8	—3.2	65.5	61.9	—3.6	56.5	53.3	—3.2	45.1	43.8	—1.3	30.9	32.6	+1.7	20.8	20.1	—0.7
Galveston, Tex	84.5	83.9	—0.6	83.5	84.6	+1.1	79.3	79.3	±0.0	72.3	76.9	+4.6	61.6	65.0	+3.4	56.0	60.2	+4.2
Grand Haven, Mich	69.7	67.4	—2.3	68.8	64.6	—4.2	60.9	57.0	—3.9	50.6	47.6	—3.0	36.9	40.8	+3.9	29.2	30.6	+1.4
Grant, Fort, Ariz	77.6	75.1	—2.5	74.6	73.8	—0.8	70.8	71.7	+0.9	62.1	58.2	—3.9	49.0	50.0	+1.0	45.1	45.1	±0.0
Hatteras, N.C	78.4	79.6	+1.2	78.3	77.0	—1.3	76.4	73.2	—3.2	69.0	64.9	—4.1	56.1	56.1	±0.0	45.7	49.3	+3.6
Helena, Mont	67.3	68.7	+1.4	67.1	67.9	—0.8	57.1	58.8	+1.7	42.0	38.3	—3.7	26.3	32.4	+6.1	22.4	27.8	+5.4
Huron, Dak	68.8	68.7	—0.1	70.8	66.7	—4.1	58.0	56.2	—1.8	46.8	43.9	—2.9	29.6	31.4	+1.8	22.2	18.3	—3.9
Indianapolis, Ind	76.8	75.1	—1.7	74.6	70.4	—4.2	65.6	63.2	—2.4	55.3	54.8	—0.5	40.4	45.0	+4.6	32.6	34.4	+1.8
Indianola, Tex	83.8	82.5	—1.3	82.7	83.6	+0.9	79.2	78.2	—1.0	72.6	76.8	+4.2	61.6	66.3	+4.7	56.0	59.5	+3.5
Jacksonville, Fla	82.5	84.1	+1.6	81.0	80.8	—0.2	77.9	76.5	—1.4	69.7	74.2	—4.5	61.6	63.3	+1.7	55.4	60.5	+5.1
Keokuk, Iowa	77.7	76.0	—1.7	75.9	71.2	—4.7	66.2	62.7	—3.5	54.8	51.5	—3.3	38.1	42.8	+4.7	28.8	31.8	+3.0
Key West, Fla	83.9	84.8	+0.9	84.2	84.3	+0.1	82.9	82.9	±0.0	79.0	79.5	+0.5	74.6	75.0	+0.4	70.1	71.5	+1.4
Kitty Hawk, N. C	78.6	79.4	+0.8	77.0	75.6	—1.4	72.6	71.6	—1.0	63.6	63.8	+0.2	52.7	54.0	+1.3	44.4	47.0	+2.6
Knoxville, Tenn	76.7	75.9	—0.8	75.0	73.1	—1.9	68.1	69.4	+1.3	57.6	62.6	+5.0	45.8	48.2	+2.4	38.8	41.1	+2.3
La Crosse, Wis	73.6	72.4	—1.2	71.7	68.1	—3.6	61.3	57.7	—3.6	50.2	46.9	—3.3	33.1	37.1	+4.0	22.8	24.3	+1.5
Leavenworth, Kans	78.0	76.8	—1.2	76.9	72.7	—4.2	67.1	63.4	—3.7	55.7	53.0	—2.7	39.4	44.0	+4.6	30.3	35.1	+4.8
Lewiston, Idaho	73.0	75.8	+2.8	71.4	72.2	+0.8	60.7	59.8	—0.9	48.9	47.8	—1.1	35.4	42.4	+7.0	33.7	34.3	+0.6
Little Rock, Ark	80.3	80.2	—0.1	78.4	77.2	—1.2	71.6	70.4	—1.2	65.2	66.5	+1.3	50.4	55.4	+5.0	45.5	48.5	+3.0
Los Angeles, Cal	67.8	69.8	+2.0	69.2	69.8	+0.6	67.1	71.9	+4.8	62.8	61.0	—1.8	57.6	59.2	+1.6	54.8	56.3	+1.5
Louisville, Ky	79.3	76.9	—2.4	76.8	72.9	—3.9	68.7	67.9	—0.8	58.2	58.6	+0.4	44.5	49.4	+4.9	37.5	41.1	+3.6
Lynchburg, Va	78.9	79.0	+0.1	75.9	74.6	—1.3	68.7	67.0	—1.7	58.2	58.9	+0.7	45.5	49.1	+3.6	38.4	41.4	+3.0
Macon, Fort, N. C	78.2	79.8	+1.6	78.4	77.4	—1.0	75.8	72.8	—3.0	68.6	65.2	—3.4	52.4	55.6	+0.2	42.4	50.0	+2.6

Marquette, Mich	65.9	62.0	−3.9	65.4	62.0	−3.4	56.6	53.9	−2.7	46.0	43.0	−3.0	31.0	32.4	+1.4	22.4	21.1	−1.3
Memphis, Tenn	81.2	80.7	−0.5	79.4	76.8	−2.6	71.0	70.2	−0.8	61.3	65.1	+3.8	48.9	54.1	+5.2	42.1	46.8	+4.7
Milwaukee, Wis	69.2	67.6	−1.6	69.2	65.9	−3.3	61.0	56.9	−4.1	48.4	48.8	+0.4	34.7	38.3	+3.6	24.4	26.4	+2.0
Mobile, Ala	82.1	83.6	+1.5	80.8	82.0	+1.2	76.6	77.9	+1.3	67.5	73.3	+5.8	58.0	60.5	+2.5	51.6	56.4	+4.8
Montgomery, Ala	82.5	82.4	−0.1	80.3	80.3	±0.0	75.0	76.0	+1.0	65.2	71.2	+6.0	54.6	58.0	+3.4	48.6	53.6	+5.0
Moorhead, Minn	68.0	65.9	−2.1	68.6	63.2	−5.4	55.4	53.4	−2.0	43.0	40.0	−3.0	23.0	23.2	+0.2	13.2	6.3	−6.9
Mount Washington, N. H	47.9	46.4	−1.5	47.6	43.8	−3.8	40.8	38.9	−1.9	30.5	29.3	−1.2	16.1	19.5	+3.4	8.9	9.1	+0.2
Nashville, Tenn	80.6	76.6	−4.0	78.8	74.1	−4.7	70.5	68.9	−1.6	60.3	62.9	+2.6	47.5	50.9	+3.4	40.9	43.8	+2.9
New Haven, Conn	73.3	71.1	−2.2	70.9	67.3	−3.6	64.6	60.1	−4.5	54.1	49.0	−5.1	40.6	42.1	+1.5	31.2	29.7	−1.5
New London, Conn	71.5	71.2	−0.3	70.2	67.9	−2.3	63.4	61.1	−2.3	53.8	50.9	−2.9	40.6	44.1	+3.5	31.8	31.5	−0.3
New Orleans, La	82.5	83.5	+1.0	81.9	83.3	+1.4	77.7	79.4	+1.7	70.1	75.4	+5.3	60.8	63.5	+2.7	54.7	60.3	+5.6
New York City	73.8	73.3	−0.5	72.4	70.8	−1.6	65.5	63.1	−2.4	55.7	53.7	−1.0	42.4	45.0	+2.6	33.0	33.7	+0.7
Norfolk, Va	79.7	79.6	−0.1	77.2	76.2	−1.0	70.8	70.5	−0.3	60.9	62.2	+1.3	49.3	53.7	+4.4	41.9	46.4	+4.5
North Platte, Nebr	73.6	72.9	−0.7	72.8	69.7	−3.1	61.5	60.0	−1.5	49.7	44.7	−5.0	33.7	38.0	+4.3	25.6	29.5	+3.9
Olympia, Wash	61.4	61.5	+0.1	61.6	61.3	−0.3	55.6	56.6	+1.0	48.6	48.7	+0.1	43.0	45.7	+2.7	41.0	39.8	−1.2
Omaha, Nebr	76.3	75.7	−0.6	75.0	71.3	−3.7	63.5	60.8	−2.7	52.8	49.4	−3.4	35.3	39.2	+3.9	24.9	28.6	+3.7
Oswego, N. Y	70.7	67.2	−3.5	70.2	65.7	−4.5	62.7	57.5	−5.2	51.7	49.5	−2.2	38.4	42.1	+3.7	29.9	30.2	+0.3
Pensacola, Fla	80.8	82.3	+1.5	80.0	81.0	+1.0	76.5	77.2	+0.7	70.8	73.2	+2.4	59.4	61.5	+2.1	54.6	57.9	+3.3
Philadelphia, Pa	76.3	76.1	−0.2	74.1	71.9	−2.2	66.7	64.5	−2.2	56.3	55.3	−1.0	42.9	47.4	+4.5	34.2	37.1	+2.9
Pike's Peak, Colo	40.0	39.1	−0.9	38.9	38.8	−0.1	32.4	30.2	−2.2	21.5	16.4	−5.1	10.2	13.8	+3.6	5.9	8.1	+2.2
Pittsburg, Pa	74.4	72.8	−1.6	72.1	69.4	−2.7	64.6	62.8	−1.8	53.9	55.3	+1.4	40.0	46.6	+6.6	32.7	36.7	+4.0
Port Huron, Mich	68.9	65.9	−3.0	68.4	64.8	−3.6	61.3	56.5	−4.8	50.0	47.0	−3.0	35.7	38.8	+3.1	27.0	27.1	+0.1
Portland, Me	69.7	69.8	+0.1	68.0	67.9	−0.1	60.8	59.2	−1.6	50.7	48.2	−2.5	37.7	42.0	+4.3	29.6	27.7	−1.9
Portland, Oreg	66.4	66.9	+0.5	65.2	62.8	−2.4	60.9	61.2	+0.3	53.1	50.8	−2.3	44.9	46.5	+1.6	41.5	41.8	+0.3
Prescott, Ariz	73.1	70.4	−2.7	70.2	70.1	−0.1	63.2	64.5	+1.3	52.4	49.9	−2.5	40.7	42.5	+1.8	36.7	40.1	+3.4
Red Bluff, Cal	82.6	84.9	+2.3	80.3	79.9	−0.4	74.8	75.4	+0.6	62.4	57.7	−4.7	54.6	50.6	−4.0	47.0	44.4	−2.6
Rochester, N. Y	71.0	(*)	(*)	69.5	(*)	(*)	61.9	(*)	(*)	50.6	47.7	−2.9	36.1	40.6	+4.5	27.9	28.2	+0.3
Roseburg, Oreg	65.8	67.0	+1.2	65.4	63.3	−2.1	60.4	60.3	−0.1	50.6	49.9	−0.7	43.5	45.4	+1.9	42.1	40.0	−2.1
Sacramento, Cal	72.6	73.1	+0.5	71.8	71.4	−0.4	69.4	71.6	+2.2	60.8	58.2	−2.6	51.8	50.5	−1.3	46.6	44.2	−2.4
Saint Louis, Mo	79.0	76.1	−2.9	77.3	72.8	−4.5	67.9	66.9	−1.0	57.6	55.5	−2.1	41.9	49.6	+7.7	33.8	39.5	+5.7
Saint Michael's, Fort, Alaska	54.1	51.6	−2.5	51.8	49.8	−2.0	44.2	44.5	+0.3	30.8	33.4	+2.6	16.7	12.9	−3.8	4.2	4.7	+0.5
Saint Paul, Minn	71.9	70.2	−1.7	70.1	66.5	−3.6	58.6	56.5	−2.1	47.0	45.2	−1.8	30.8	32.8	+2.0	18.9	19.8	+0.9
Saint Vincent, Minn	65.5	62.0	−3.5	65.7	60.3	−5.4	52.5	50.7	−1.8	39.6	37.2	−2.4	18.6	18.5	−0.1	6.9	1.1	−5.8
Salt Lake City, Utah	75.5	75.9	+0.4	74.7	76.4	+1.7	64.2	69.3	+5.1	52.4	46.1	−6.3	38.3	39.0	+0.7	32.5	32.9	+0.4
San Diego, Cal	67.0	68.7	+1.7	68.7	68.9	+0.2	66.5	69.7	+3.2	63.0	61.7	−1.3	58.2	58.7	+0.5	55.4	57.5	+2.1
Sandusky, Ohio	73.5	(*)	(*)	72.6	69.4	−3.2	65.7	61.2	−4.5	55.9	52.5	−3.4	40.7	44.1	+3.4	32.6	33.3	+0.7
Sandy Hook, N. J	74.4	74.8	+0.4	73.0	72.2	−0.8	67.2	64.3	−2.9	57.1	55.2	−1.9	44.5	46.0	+1.5	34.8	35.4	+0.6
San Francisco, Cal	58.1	58.8	+0.7	58.6	57.9	−0.7	59.6	62.1	+2.5	59.5	57.1	−2.4	55.8	53.5	−2.3	51.7	50.2	−1.5
Savannah, Ga	82.8	84.4	+1.6	80.7	80.8	+0.1	75.9	74.8	−1.1	66.5	70.0	+3.5	57.6	59.6	+2.0	51.8	57.1	+5.3
Shaw, Fort, Mont	64.1	62.1	−2.0	63.0	63.4	+0.4	53.3	53.9	+0.6	40.2	36.4	−3.8	28.1	30.0	+1.9	25.3	28.6	+3.3
Shreveport, La	82.8	83.9	+1.1	82.2	81.6	−0.6	74.4	74.5	+0.1	65.9	70.9	+5.0	54.0	57.9	+3.9	49.2	52.3	+3.1
Sill, Fort, Ind. T	81.0	79.6	−1.4	79.7	(*)	(*)	72.3	72.0	−0.3	62.6	(*)	(*)	47.2	(*)	(*)	38.4	(*)	(*)
Sitka, Alaska	53.8	52.2	−1.6	56.0	53.6	−2.4	52.2	53.2	+1.0	46.1	45.5	−0.6	41.1	33.4	−7.7	36.2	36.4	+0.2
Smithville, N. C	81.0	81.5	+0.5	76.8	78.1	−1.7	74.7	72.4	−2.3	65.9	65.7	−0.2	54.5	55.8	+1.3	47.2	51.7	+4.5
Spokane Falls, Wash	67.4	71.1	+3.7	65.4	68.8	+3.4	56.2	57.7	−1.5	43.6	44.3	+0.7	33.4	39.0	+5.6	32.6	29.5	−3.1
Springfield, Ill	77.0	74.9	−2.1	75.5	70.5	−5.0	66.0	63.2	−2.8	58.2	53.2	−5.0	40.6	44.3	+3.7	31.9	33.8	+1.9
Stockton, Fort, Tex	80.2	79.0	−1.2	77.2	79.7	+2.5	71.6	70.4	+1.2	63.2	65.0	+1.8	49.8	52.9	+3.1	45.1	48.3	+3.2
Thomas, Camp, Ariz	82.5	82.3	−0.2	79.4	81.4	+2.0	71.8	75.7	+3.9	57.8	58.9	+1.1	46.6	48.6	+2.0	43.2	45.5	+2.3
Toledo, Ohio	74.1	73.5	−0.6	72.1	69.2	−2.9	64.0	60.6	−3.4	53.4	51.8	−1.6	38.9	44.2	+5.3	30.6	32.7	+2.1
Vicksburg, Miss	82.0	81.8	−0.2	80.5	80.3	−0.2	74.8	75.0	+0.2	65.8	71.3	+5.5	54.7	58.7	+4.0	49.9	54.3	+4.4

* No record.

Table of comparative mean temperatures (in degrees Fahrenheit) at stations of the Signal Service, United States Army—Continued.

Stations.	July.			August.			September.			October.			November.			December.		
	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.	Mean to include 1882.	Mean for 1883.	Departure + or −.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Washington City	78.2	76.8	−1.4	75.0	72.1	−2.9	67.8	65.1	−2.7	57.9	56.9	−1.0	43.8	47.2	+3.4	35.4	36.9	+1.5
Wilmington, N. C	80.5	81.5	+1.0	78.6	78.3	−0.3	73.4	72.1	−1.3	63.8	66.2	+2.2	53.7	57.0	+3.3	47.1	52.8	+5.7
Yankton, Dak	73.8	71.9	−1.9	72.7	70.6	−2.1	61.1	59.0	−2.1	49.0	46.0	−3.0	31.6	34.8	+3.2	20.9	24.1	+3.2
Yuma, Ariz	92.5	92.1	−0.4	91.1	91.0	−0.1	84.1	85.7	+1.6	72.8	66.7	−6.1	60.4	61.4	+1.0	56.0	(*)	(*)

* No record.

APPEN

Table showing the mean a. m., p. m., and midnight temperatures (in degrees Fahrenheit) at
from the commencement of obser

[The monthly means are obtained by dividing the sum of each of

Station.	Mean temperature.														
	January.			February.			March.			April.			May.		
	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	20.2	26.6	22.6	21.7	29.4	24.4	29.6	36.5	31.4	42.0	50.2	42.5	56.3	65.6	55.9
Alpena, Mich	15.8	22.5	17.9	14.9	24.3	18.4	20.4	29.2	23.4	33.6	40.7	33.9	47.1	53.1	46.6
Apache, Fort, Ariz	22.6	46.0	32.0	26.1	50.6	37.0	32.1	59.2	43.9	34.9	65.9	50.0	39.7	74.7	57.3
Assinaboine, Fort, Mont	7.3	12.9	8.5	12.2	20.6	17.5	25.1	36.8	29.8	32.9	50.5	41.2	42.3	59.7	50.9
Atlanta, Ga	41.3	50.1	45.8	43.1	54.0	48.5	47.2	60.3	53.3	55.3	67.8	60.8	63.4	75.7	67.8
Atlantic City, N. J	29.5	35.5	31.4	31.0	37.4	32.8	36.0	42.3	37.1	44.7	49.7	44.3	56.2	60.6	54.8
Augusta, Ga	42.0	54.9	46.4	44.3	58.9	49.2	48.9	65.3	54.3	57.9	72.6	61.3	67.2	81.0	69.2
Baltimore, Md	31.5	38.2	34.2	33.2	41.8	36.5	38.2	46.9	41.4	48.7	58.8	51.3	60.4	71.3	62.1
Barnegat City, N. J	29.3	34.5	30.6	30.4	36.1	31.5	35.9	41.3	36.4	44.8	48.5	43.4	57.2	59.5	54.1
Behring's Island, Behring Sea	25.0	25.4	26.2	27.8	28.0	30.3	24.2	24.2	27.2	26.3	28.4	31.1	33.7	34.9	37.2
Bennett, Fort, Dak	2.8	16.7	9.9	11.8	27.3	20.1	21.7	36.1	28.1	34.9	51.9	42.7	48.5	64.7	55.7
Benton, Fort, Mont	11.7	20.3	13.7	15.7	28.8	21.6	24.9	42.8	31.6	32.5	51.8	40.8	42.8	62.6	52.3
Bismarck, Dak	0.3	12.5	5.2	6.8	19.0	11.5	15.8	29.0	20.9	33.0	48.3	38.8	48.2	63.3	53.1
Block Island, R. I	28.3	32.5	30.1	30.5	35.3	32.3	33.8	38.7	34.9	40.7	46.4	41.2	50.3	54.4	49.7
Boise City, Idaho	23.0	34.0	30.2	27.9	38.6	34.8	34.9	50.2	44.7	39.9	57.1	51.5	45.8	65.4	57.4
Boston, Mass	23.4	30.4	25.4	24.6	32.8	26.9	31.7	38.4	32.7	41.8	48.7	41.4	55.5	61.2	52.9
Brownsville, Tex	54.7	66.0	57.9	57.6	68.9	60.4	64.2	75.4	67.4	70.4	81.0	72.9	76.1	85.4	77.5
Buffalo, N. Y	23.6	26.9	24.7	22.8	28.0	25.2	28.8	33.7	30.2	39.1	44.9	40.1	51.5	57.6	52.3
Buford, Fort, Dak	1.8	13.8	5.2	4.4	18.9	10.1	16.3	30.5	21.5	32.4	50.7	39.4	45.0	62.9	54.1
Cairo, Ill	32.0	40.4	35.8	36.0	45.6	40.5	42.6	52.8	47.2	53.0	64.6	57.8	63.3	74.6	66.5
Cape Henry, Va	38.9	43.2	40.3	40.5	45.9	41.9	44.9	50.1	46.1	52.5	57.5	52.3	62.6	67.8	61.8
Cape May, N. J	31.9	36.6	34.1	33.1	38.6	35.3	37.9	42.9	39.6	45.9	51.2	47.2	53.7	62.1	57.1
Cape Mendocino, Cal	43.0	46.8	45.1	41.0	46.5	43.0	47.9	52.0	43.4	44.9	49.5	45.8	48.3	53.2	48.4
Cedar Keys, Fla	56.4	64.0	59.1	58.2	66.5	61.4	59.9	68.4	63.5	67.5	75.8	69.5	72.1	81.2	73.8
Charleston, S. C	45.7	53.7	49.2	48.5	57.5	51.9	53.4	63.2	56.8	61.0	69.4	63.0	69.8	76.8	70 9
Charlotte, N. C	37.6	47.2	41.2	40.4	52.6	45.5	44.8	58.0	49.2	53.6	66.4	57.2	64.0	76.1	66.6
Chattanooga, Tenn	39.6	48.5	43.9	41.1	51.7	45.8	45.7	58.3	51.0	54.1	67.8	58.6	62.6	76.7	66.2
Cheyenne, Wyo	20.0	32.7	22.6	21.9	37.1	25.6	26.0	43.2	31.1	31.2	49.9	38.0	42.4	61.5	48.9
Chicago, Ill	22.0	28.7	24.8	25.2	32.7	29.0	31.4	38.0	34.8	42.3	48.9	45.1	54.6	60.4	55.6
Chincoteague, Va	31.8	36.2	33.2	35.5	42.3	37.2	38.6	45.2	40.6	47.0	52.3	47.4	58.4	62.9	58.0
Cincinnati, Ohio	31.2	38.4	33.9	33.4	42.6	37.6	38.8	48.9	43.0	49.2	61.0	53.8	60.1	72.8	64.3
Cleveland, Ohio	24.7	29.4	26.3	25.4	31.6	28.3	31.0	37.1	33.9	42.5	48.7	44.2	54.9	62.4	57.1
Columbus, Ohio	27.4	33.8	30.4	30.7	37.9	34.5	35.2	44.3	39.2	44.9	56.7	49.5	57.6	71.0	62.1
Concho, Fort, Tex	35.8	54.3	41.6	39.4	59.3	46.5	48.2	70.2	56.4	54.5	78.1	63.0	64.4	84.9	71.0
Custer, Fort, Mont	13.0	25.0	17.0	18.2	31.8	24.4	25.5	42.2	33.5	34.0	54.0	44.9	45.1	63.5	54.7
Davenport, Iowa	18.0	26.3	21.7	22.4	33.1	27.8	30.1	40.5	35.0	43.1	55.5	48.2	56.0	65.8	60.5
Davis, Fort, Tex	34.7	55.6	42.2	37.7	59.4	46.2	43.4	67.2	53.7	50.8	73.0	60.6	59.9	80.4	67.6
Dayton, Wash. T	28.2	35.4	29.4	24.8	37.1	28.6	35.6	51.8	41.5	40.2	57.7	47.4	45.0	66.0	53.8
Deadwood, Dak	17.5	29.8	20.0	20.2	32.3	24.0	25.8	40.3	31.0	33.1	47.0	38.7	43.4	55.7	47.8
Delaware Breakwater, Del	34.3	38.0	35.2	35.2	42.0	37.1	37.8	43.6	39.9	46.0	51.5	47.3	57.4	63.4	58.1
Denver, Colo	20.4	35.8	25.5	24.5	41.2	30.6	30.7	49.5	39.3	36.7	55.7	46.3	47.1	66.4	56.4
Des Moines, Iowa	15.9	26.2	20.7	21.0	32.5	26.2	29.3	41.7	34.9	41.8	57.2	49.0	54.4	69.3	60.8
Detroit, Mich	22.5	27.7	24.2	23.5	31.1	26.5	29.2	37.4	32.0	40.8	51.0	42.1	53.4	64.7	55.3
Dodge City, Kans	19.4	35.1	25.7	24.9	44.1	32.5	31.9	53.2	40.9	42.2	64.7	51.6	55.2	73.5	61.5
Dubuque, Iowa	14.2	25.0	19.9	19.0	31.5	25.4	27.6	39.6	33.2	41.4	55.2	46.8	55.1	68.7	59.7
Duluth, Minn	7.2	16.8	11.6	12.1	23.1	17.8	18.6	30.8	24.6	33.9	43.5	37.5	45.2	53.9	47.3
Eastport, Me	17.2	22.6	19.4	19.9	25.7	21.7	26.0	31.6	28.0	35.9	41.3	35.9	46.5	51.5	44.2
Elliott, Fort, Tex	23.7	42.1	30.3	26.4	45.8	31.4	36.4	56.8	44.4	44.8	68.4	56.2	54.2	72.8	63.6
El Paso, Tex	37.8	54.6	45.7	40.8	60.6	49.3	46.2	68.8	56.6	52.0	76.6	63.0	60.2	86.0	72.6
Erie, Pa	26.2	30.4	28.1	26.1	31.4	28.7	31.0	36.5	33.6	41.6	47.3	42.5	55.3	61.8	55.8
Escanaba, Mich	11.5	19.2	14.5	12.2	22.4	16.2	17.3	29.0	21.4	31.9	40.9	34.0	46.4	54.8	47.1
Fort Smith, Ark	28.8	38.8	32.9	33.8	45.2	40.1	40.9	58.2	48.8	53.0	70.7	60.0	60.5	77.1	65.6
Galveston, Tex	50.5	55.9	53.2	54.2	60.4	56.8	61.1	67.1	63.2	66.4	73.4	68.8	73.4	80.7	75.2
Grand Haven, Mich	23.8	27.6	25.2	22.9	30.1	26.1	27.9	34.8	30.9	40.7	47.5	42.3	53.6	59.3	53.5
Grant, Fort, Ariz	35.2	50.3	43.0	38.8	53.8	44.7	43.8	61.4	52.2	48.3	68.3	58.0	56.8	77.8	66.5
Hatteras, N. C	42.8	45.1	42.8	45.0	49.9	46.1	46.5	52.0	48.1	53.5	59.0	53.6	63.8	70.0	62.9
Helena, Mont	13.1	19.2	16.0	17.1	25.6	21.6	29.5	40.3	34.9	35.4	47.7	40.9	44.0	57.9	51.1
Huron, Dak	5.2	16.3	9.2	12.2	26.5	17.8	23.3	34.3	28.6	36.6	51.9	43.8	44.8	58.1	50.4
Indianapolis, Ind	26.2	34.1	29.6	28.8	38.6	33.8	35.4	45.8	39.7	47.4	59.3	51.3	59.6	71.2	62.1
Indianola, Tex	49.9	57.4	52.8	54.6	61.9	56.2	61.7	69.3	64.2	66.4	74.9	68.7	73.8	80.4	74.8
Jacksonville, Fla	50.7	62.7	54.1	52.8	65.1	56.5	57.5	70.0	60.6	65.6	75.8	65.7	73.7	80.6	71.7
Keokuk, Iowa	20.7	29.9	25.0	25.7	36.3	30.5	32.7	43.9	37.3	45.6	58.2	50.3	58.4	70.1	62.1
Key West, Fla	67.8	73.0	69.5	69.4	75.5	70.7	71.2	77.4	72.2	75.1	80.7	75.1	78.6	83.4	77.8
Kitty Hawk, N. C	40.3	44.6	41.5	41.5	46.3	43.3	45.5	51.8	46.8	52.2	58.3	52.6	61.9	68.3	61.1

DIX 34.

stations of the Signal Service, United States Army, for each month of the year (computed vations to December 31, 1883).

the observations named by the number of days in the montl.,

Mean temperature.

June.			July.			August.			September.			October.			November.			December.		
7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
66.2	74.0	64.5	70.0	78.4	69.2	67.3	77.5	67.4	59.3	69.4	60.3	47.5	56.8	49.4	36.5	44.4	38.1	26.4	30.9	28.5
57.6	63.7	56.7	63.7	70.4	63.2	61.6	70.2	62.2	53.6	61.8	54.6	42.0	49.6	43.8	30.4	34.8	31.3	21.6	26.1	23.0
48.7	85.9	67.8	60.5	84.5	71.0	59.3	81.8	69.0	49.1	79.0	61.8	38.2	69.1	50.4	27.0	56.2	38.0	25.4	50.0	34.2
52.8	71.8	63.1	56.7	77.2	67.2	56.0	75.9	65.9	45.1	63.2	53.4	33.5	45.1	38.3	22.0	31.3	25.4	17.8	23.7	19.4
71.8	82.5	74.5	74.1	85.3	77.2	70.6	81.9	74.0	65.1	77.5	70.0	58.0	69.9	62.5	46.3	57.8	50.2	40.5	50.7	44.9
66.2	70.4	64.0	71.5	76.3	69.6	70.6	75.4	70.0	65.2	70.7	65.3	54.7	60.9	55.4	41.8	47.8	43.0	33.3	38.4	34.8
74.7	86.7	76.1	78.1	89.2	79.1	75.2	86.6	77.1	69.5	82.6	72.2	57.8	73.5	62.0	47.5	62.0	51.7	41.7	55.6	46.0
70.7	80.4	71.0	75.3	84.9	75.5	71.4	81.4	73.1	63.7	73.9	65.8	53.4	63.8	56.0	42.3	49.4	44.1	38.9	40.6	36.5
67.2	69.6	63.2	73.0	75.1	68.3	71.5	74.2	69.1	65.5	69.5	64.4	54.7	59.6	54.4	41.8	46.9	42.3	32.7	37.9	33.9
40.0	41.6	45.0	45.0	46.4	49.8	51.4	52.2	55.4	46.2	47.0	50.4	37.6	38.0	39.6	33.9	30.0	30.3	27.6	28.0	28.2
59.3	75.8	65.5	63.2	81.3	69.3	61.7	84.1	71.2	49.7	71.4	57.9	37.0	55.1	43.6	21.4	37.4	26.8	14.0	28.1	19.4
53.5	72.0	62.4	59.2	90.6	69.1	57.9	78.8	68.5	46.2	66.1	56.2	33.9	48.2	39.9	23.2	34.6	27.0	19.3	30.4	23.8
57.0	71.6	60.9	62.8	79.2	67.8	59.1	78.5	66.5	46.7	66.8	53.9	35.3	52.7	40.8	19.4	31.4	23.4	9.7	19.9	12.9
61.3	66.0	60.2	67.6	73.2	67.1	66.6	72.4	67.2	63.0	67.4	63.2	53.2	58.4	54.4	42.8	48.0	44.7	34.6	37.5	35.6
53.2	76.3	68.8	58.5	84.2	75.7	57.5	83.3	75.0	48.2	67.3	62.3	37.6	55.7	48.3	31.0	43.8	38.0	26.6	37.2	32.7
65.0	71.6	62.0	70.3	76.6	67.9	67.6	74.8	66.2	59.9	67.3	59.2	49.3	57.0	49.7	36.5	42.9	37.4	26.9	33.1	28.7
79.9	89.2	81.5	81.0	90.0	82.4	79.2	89.4	81.4	74.9	85.8	78.0	71.3	82.1	74.2	60.8	71.3	64.1	55.9	66.5	59.0
62.5	68.2	62.9	67.7	73.9	68.5	66.4	74.3	67.6	59.0	66.6	60.1	48.2	54.6	49.6	35.7	39.7	36.7	27.6	30.5	28.9
54.9	72.6	61.5	58.5	78.4	65.2	55.9	78.9	65.3	43.5	67.4	52.2	34.7	50.7	39.6	18.7	30.5	22.2	4.7	15.6	7.5
71.4	81.8	73.5	75.4	85.6	77.7	73.2	84.7	75.9	63.2	77.0	67.5	53.4	67.7	57.7	41.0	51.2	45.3	34.2	42.9	38.0
72.3	77.8	70.6	76.8	82.6	75.1	75.0	79.8	74.0	70.5	75.6	69.7	61.2	66.5	61.3	49 0	54.8	50.4	41.0	46.4	42.9
66.8	71.6	66.6	72.1	77.2	71.6	71.6	76.3	71.5	65.8	71.3	66.7	56.5	62.1	57.9	44.2	48.9	45.5	35.4	39.5	37.3
52.0	57.7	53.7	49.1	54.2	52.6	51.8	56.2	54.5	55.4	60.6	57.6	50.6	55.3	52.5	48.5	52.6	49.7	48.8	50.4	49.4
79.2	85.4	79.4	80.7	86.6	81.0	78.9	86.7	79.9	75.2	84.8	78.2	70.3	79.0	72.9	60.4	69.6	63.3	55.8	63.9	58.8
77.5	84.4	77.5	80.7	87.2	80.6	78.2	84.9	79.4	72.7	80.4	74.9	63.2	71.6	65.8	53.4	62.0	56.2	46.9	55.7	50.2
73.1	83.3	74.3	75.7	86.0	77.4	72.1	81.8	75.3	64.6	76.2	67.6	55.2	68.6	59.7	44.1	56.3	48.3	37.8	48.8	42.0
70.8	83.4	72.9	73.3	86.4	75.8	70.5	82.8	73.7	63.8	78.1	67.9	57.6	70.7	61.7	44.5	56.1	48.7	39.8	48.9	42.8
51.7	73.5	59.2	56.6	79.3	65.5	54.3	78.0	63.7	44.3	69.1	52.8	35.6	55.3	40.9	27.5	41.1	29.6	23.2	35.4	25.5
63.3	69.2	64.0	69.8	76.2	71.1	68.5	76.0	71.0	59.5	68.8	63.2	48.5	57.2	51.9	35.2	42.0	38.3	26.8	32.5	29.3
68.7	73.0	67.2	73.6	78.2	72.4	71.6	76.1	71.3	68.5	73.2	69.0	59.2	63.9	59.8	45.0	51.1	46.7	36.1	41.8	37.5
69.5	80.7	72.4	73.5	84.9	76.6	76.5	82.5	74.5	62.2	74.9	66.5	52.2	64.1	56.5	40.5	49.2	43.5	33.5	40.7	36.4
64.7	72.3	65.8	69.2	76.8	69.9	67.0	75.6	68.8	59.5	68.8	61.9	49.2	58.0	52.0	36.5	42.0	38.0	28.2	32.1	29.5
66.0	76.9	69.0	70.8	82.5	74.1	66.8	79.7	71.1	59.6	73.2	63.7	51.0	63.1	55.1	37.2	46.6	41.0	29.8	35.1	32.0
71.6	91.4	78.0	74.0	92.2	80.2	70.1	90.3	77.7	64.0	82.5	71.2	56.7	76.7	62.0	43.8	61.5	48.7	38.1	56.4	43.7
55.6	72.2	63.6	60.0	80.6	71.4	50.2	81.0	71.7	45.8	69.9	58.5	36.1	54.9	44.8	22.6	40.0	29.1	15.1	27.3	19.5
65.7	76.5	69.2	70.0	81.8	74.1	67.7	80.4	72.5	57.9	71.3	62.6	47.1	58.8	51.6	32.7	41.9	36.5	24.2	31.5	27.3
66.6	86.0	73.4	67.4	83.0	73.0	63.6	80.0	70.2	57.7	76.5	65.4	52.4	71.6	59.6	40.7	60.6	48.3	35.0	55.9	42.2
51.4	74.8	62.4	55.1	81.2	67.7	53.6	79.5	64.3	48.8	71.5	57.0	40.3	56.2	46.0	33.0	42.3	35.2	30.5	37.2	32.5
54.0	67.2	57.8	57.3	72.4	62.7	56.3	73.6	62.2	46.2	64.4	52.3	37.3	49.0	40.5	26.8	37.6	29.7	19.1	28.7	21.2
66.7	72.2	66.6	71.3	77.8	71.4	70.0	76.7	70.2	67.4	73.6	68.3	58.2	64.4	59.4	45.1	50.8	48.6	35.6	41.2	36.8
56.0	77.8	66.6	61.6	82.9	71.6	60.2	81.3	70.1	49.6	72.5	60.2	39.8	61.0	48.9	29.8	47.3	34.9	24.2	39.2	28.3
63.6	76.6	68.2	67.4	81.6	72.4	66.8	82.1	72.3	56.3	71.6	61.6	47.0	60.4	51.4	32.1	43.0	36.3	20.8	29.1	23.6
63.3	73.8	64.6	67.2	78.5	69.1	65.4	77.2	68.2	57.5	68.9	60.4	47.4	57.1	50.4	34.9	40.8	36.7	26.8	31.2	28.3
65.0	83.6	70.8	69.4	87.8	74.9	67.2	85.7	73.2	57.7	78.5	64.6	45.4	66.6	53.0	29.7	49.4	36.3	23.9	41.5	29.4
63.3	75.5	67.0	69.0	82.2	72.5	66.1	80.6	70.4	56.3	69.9	60.5	45.8	57.8	50.2	30.5	40.4	34.6	21.7	30.0	25.6
55.0	63.5	56.6	62.7	73.1	64.6	62.3	72.0	63.7	52.0	61.6	54.8	41.2	49.6	44.3	25.3	32.3	27.8	12.4	20.9	15.6
54.7	59.5	51.1	59.8	65.3	56.5	59.8	65.4	57.2	54.5	59.2	53.3	45.9	49.9	45.7	34.2	37.4	34.4	23.4	27.0	24.4
63.4	83.5	73.4	65.6	84.2	75.1	64.4	84.3	73.4	57 4	77.7	65.0	48.4	67.1	55.2	31.7	51.1	37.5	27.3	46.1	32.6
70.5	93.2	80.2	72.8	92.0	80.1	69.7	89.2	77.2	61.9	84.1	71.4	52.9	76.5	61.8	41.3	61.3	48.8	37.6	55.9	45.0
65.4	72.2	65.1	70.4	76.6	70.3	68.1	75.5	68.5	61.0	68.2	62.2	50.7	57.1	52.3	38.6	42.9	39.9	30.8	34.2	32.5
57.7	65.6	58.2	63.5	72.8	64.1	61.4	71.1	63.3	52.4	61.6	51.7	41.9	49.0	44.0	28.5	34.3	30.4	18.2	23.8	20.1
70.3	86.8	75.3	72.1	87.7	76.7	69.2	86.7	75.0	61.0	81.0	68.2	58.4	72.8	62.5	45.8	60.0	50.4	35.8	50.0	40.7
80.0	86.8	80.9	81.6	88.9	82.9	80.7	87.8	82.4	76.5	82.7	78.8	69.0	76.0	72.2	59.1	64.8	61.5	53.8	58.9	56.8
63.3	68.2	61.8	68.3	73.5	66.9	66.1	73.0	66.3	57.8	65.2	58.9	47.3	54.4	49.5	35.1	39.6	36.9	27.8	30.8	29.2
66.2	86.5	76.5	69.3	85.0	77.4	67.6	82.0	73.8	62.9	79.6	70.5	53.0	70.6	60.7	41.3	57.8	48.5	37.2	53.3	44.8
73.6	79.0	72.0	77.4	82.9	76.0	76.5	81.6	75.6	73.8	78.8	73.4	66.2	70.5	66.1	54.3	58.7	55.3	44.9	49.0	45.9
53.5	67.7	60.8	61.2	74.0	67.5	60.5	73.4	67.9	51.5	63.2	58.0	36.5	45.6	41.2	24.2	31.6	27.6	21.0	26.8	23.4
57.5	73.0	63.5	61.5	77.0	67.5	60.8	79.2	68.3	48.8	68.0	55.2	39.0	54.1	44.3	24.8	37.2	28.5	15.5	28.5	18.8
63.8	79.1	70.1	72.6	83.2	74.1	69.0	81.9	72.0	59.3	73 4	63.5	49.5	62.2	54.1	36.5	45.5	40.2	29.4	36.3	32.5
80.1	86.8	80.0	81.1	88.3	81.6	79.9	87.4	81.2	76.1	83.0	78.4	69.3	77.3	72.2	58.6	66.2	61.3	53.0	60.3	55.6
79.8	85.2	77.3	81.3	87.2	79.1	79.6	85.8	77.7	75.0	82.6	75.8	66.3	75.7	68.1	57.2	67.9	60.0	50.4	62.7	54.3
68.5	78.6	70.5	72.0	84.2	76.8	69.8	83.4	73.6	60.0	73.7	64.1	48.8	61.6	53.3	33.9	43.8	37.6	25.3	33.1	28.8
82.1	86.7	81.2	82.8	87.3	82.0	82.7	87.7	82.4	81.3	86.0	81.3	77.3	81.8	77.9	73.1	77.5	73.7	68.3	73.6	69.6
71.5	78.0	70.6	77.1	83.3	75.6	75.4	80.3	74.8	70.5	76.2	70.8	62.1	66.7	62.2	50.8	56.1	51.7	42.5	49.6	44.1

Table showing the mean a. m., p. m., and midnight temperatures at stations of the Signal

Station.	Mean temperature.														
	January.			February.			March.			April.			May.		
	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.
Knoxville, Tenn	33.5	43.7	37.2	36.6	48.5	41.4	40.9	56.3	47.2	50.7	65.7	55.8	60.1	75.6	63.9
La Crosse, Wis	12.3	21.2	16.3	17.0	28.6	23.1	26.0	36.9	32.3	40.6	52.9	46.8	54.5	67.1	60.0
Leavenworth, Kans	21.6	31.7	26.2	26.3	39.7	32.8	33.9	48.2	40.3	46.2	61.5	52.9	58.6	72.4	64.2
Lewiston, Idaho	29.0	33.9	31.8	27.4	35.3	31.8	37.0	48.4	44.6	42.7	56.6	51.6	48.3	64.4	59.7
Little Rock, Ark	39.6	49.1	43.8	43.4	52.8	48.3	48.3	59.6	54.2	56.6	70.6	63.2	64.3	77.5	69.1
Los Angeles, Cal	45.4	60.2	51.0	46.5	61.8	52.3	48.5	64.0	54.3	50.9	66.8	56.1	53.5	71.9	59.9
Louisville, Ky	31.7	39.0	35.0	34.6	43.7	38.8	39.3	48.2	44.1	50.2	61.7	54.8	61.9	74.0	65.5
Lynchburg, Va	33.0	42.9	35.9	35.3	47.3	38.8	39.3	53.0	44.2	50.6	63.4	53.8	62.4	74.0	63.1
Mackinaw City, Mich	13.5	19.1	15.4	10.6	19.1	15.4	11.6	24.5	16.4	32.9	40.4	34.4	42.1	50.0	42.1
Macon, Fort, N. C	42.2	48.4	43.5	45.0	54.0	47.2	46.7	54.5	49.3	54.2	61.9	55.0	64.6	73.1	64.8
Maginnis, Fort, Mont	11.1	15.6	14.3	14.4	22.4	16.5	26.6	38.9	28.2	32.8	46.0	36.7	40.7	51.4	41.8
Marquette, Mich	14.9	21.2	17.0	14.8	24.3	18.5	20.1	29.6	23.2	33.9	42.1	35.4	48.0	55.3	48.1
Memphis, Tenn	36.1	45.0	40.5	39.5	50.0	45.1	46.4	57.7	51.9	55.7	67.4	60.6	66.3	77.3	69.0
Milwaukee, Wis	17.7	24.3	20.7	20.7	28.5	24.8	27.0	34.3	30.8	39.2	45.4	41.8	51.2	56.8	52.5
Mobile, Ala	46.4	56.8	50.2	49.6	61.3	53.9	54.6	66.5	58.8	62.2	73.8	65.2	69.6	81.7	72.0
Montgomery, Ala	44.3	55.7	49.0	46.7	59.8	52.1	50.9	65.7	56.8	58.5	72.6	63.1	67.4	81.2	71.0
Moorhead, Minn	− 8.0	3.4	− 2.6	2.9	14.5	9.0	10.5	23.6	18.2	30.8	44.4	37.4	45.5	57.7	52.4
Mt. Washington, N. H	4.5	6.1	5.2	5.5	7.2	5.7	9.2	11.8	10.0	18.8	22.2	19.6	31.7	36.2	32.9
Nashville, Tenn	35.2	44.3	39.1	38.2	49.2	43.0	44.0	56.3	49.1	54.3	67.0	68.3	61.7	77.3	67.2
New Haven, Conn	24.5	32.1	27.3	26.1	34.2	28.8	32.8	40.1	33.8	43.5	50.5	43.1	56.6	63.6	54.7
New London, Conn	25.0	32.0	28.2	26.7	33.4	28.8	33.4	39.0	33.8	43.9	48.9	42.5	56.3	60.1	53.0
New Orleans, La	50.7	59.5	54.0	54.0	63.8	57.3	58.6	68.7	62.1	65.7	74.8	63.2	72.6	80.1	73.2
New York City	27.4	33.4	29.5	28.2	35.2	30.7	33.7	41.1	35.7	43.8	51.9	45.2	56.0	64.3	56.9
Norfolk, Va	39.0	44.1	39.5	39.3	47.8	41.6	44.2	53.2	46.7	53.2	62.1	53.7	64.3	72.6	64.6
North Platte, Nebr	12.7	30.3	18.7	18.4	37.7	25.4	26.9	45.9	34.5	38.4	58.2	45.4	51.1	67.2	57.1
Olympia, Wash. T	35.2	40.2	38.0	36.2	42.2	39.3	39.4	48.6	45.3	41.2	52.9	48.6	44.5	58.9	54.8
Omaha, Nebr	16.1	26.9	20.8	21.5	33.9	27.4	29.2	42.8	35.1	42.9	57.9	49.2	56.3	60.9	61.1
Oswego, N. Y	24.4	28.1	25.9	23.9	29.1	26.2	29.6	34.8	31.8	40.6	46.0	41.9	51.9	59.6	53.1
Palestine, Tex	37.6	48.3	43.8	44.0	52.8	48.5	54.0	67.8	61.3	60.2	73.9	66.2	64.9	78.2	70.3
Pensacola, Fla	52.1	60.4	55.4	53.6	63.4	57.6	56.6	67.2	60.6	64.7	73.3	67.0	70.2	79.4	72.0
Philadelphia, Pa	29.0	35.0	30.8	30.1	38.2	32.8	35.7	44.4	38.5	45.7	56.0	47.8	57.8	69.3	59.4
Pike's Peak, Colo	0.7	5.4	2.0	1.0	7.1	2.9	4.3	12.4	6.7	9.0	17.8	11.9	18.4	26.9	20.9
Pittsburg, Pa	28.6	35.3	31.6	28.9	37.5	32.0	33.8	43.9	37.5	44.3	57.7	48.0	55.9	70.6	59.4
Port Huron, Mich	19.4	25.7	21.6	20.8	28.2	23.7	26.4	33.0	29.1	38.8	44.8	39.4	50.7	58.2	50.9
Portland, Me	19.9	27.3	22.6	21.9	30.6	25.5	29.4	37.1	31.4	40.5	48.0	41.0	52.8	59.8	52.0
Portland, Oreg	36.9	42.5	39.5	38.6	45.6	41.8	42.4	51.8	47.8	44.3	57.5	52.3	48.5	62.4	57.3
Prescott, Ariz	22.7	44.8	31.8	25.0	47.8	37.0	30.9	56.8	42.7	37.0	62.7	48.6	42.8	70.6	56.2
Provincetown, Mass	27.2	29.8	27.4	29.1	33.4	30.2	31.4	35.4	31.8	39.7	46.0	39.5	49.6	53.3	48.0
Red Bluff, Cal	40.1	49.6	46.1	43.2	53.4	49.8	47.2	61.2	55.9	50.6	66.0	60.2	56.0	73.8	67.2
Rio Grande City, Tex	52.6	66.3	58.9	56.0	71.4	61.8	62.7	80.4	68.2	68.0	88.6	73.5	73.7	92.0	78.3
Rochester, N. Y	22.9	26.4	24.0	22.6	28.2	24.6	28.2	34.4	29.7	40.1	47.5	41.2	53.7	62.7	54.2
Roseburg, Oreg	37.2	43.2	40.4	38.2	45.7	42.7	40.6	52.7	49.2	42.8	57.1	51.9	45.6	62.6	57.0
Sacramento, Cal	41.1	49.8	46.6	44.3	53.8	50.9	48.6	59.9	55.7	51.0	63.8	58.7	54.6	70.3	64.5
Saint Louis, Mo	27.8	36.2	31.1	31.1	41.3	36.0	37.2	49.2	42.9	48.9	62.2	54.4	60.6	73.0	64.8
Saint Michael's, Fort, Alaska	5.3	8.6	8.0	−5.0	−1.2	−0.8	4.2	10.1	11.4	13.1	20.4	23.0	28.0	34.9	36.2
Saint Paul, Minn	8.8	17.7	12.4	12.8	24.7	17.8	22.6	34.7	28.3	37.9	51.8	43.7	53.1	66.1	57.2
Saint Vincent, Minn	−10.7	−1.3	−7.2	−2.2	9.5	3.4	6.6	19.9	13.7	26.2	39.9	32.3	43.9	58.6	49.7
Salt Lake City, Utah	25.1	33.1	27.8	28.5	38.5	32.4	36.0	48.2	41.2	42.0	55.8	48.7	49.8	64.9	56.8
San Diego, Cal	48.0	60.4	52.6	49.1	60.3	53.5	50.8	61.3	54.9	52.5	63.6	57.0	56.6	66.2	60.0
Sandusky, Ohio	26.7	31.4	28.6	29.0	34.3	31.7	34.5	39.6	36.8	44.9	51.0	47.2	57.3	64.7	59.1
Sandy Hook, N. J	28.8	33.4	30.5	29.4	35.5	31.1	34.8	40.8	36.5	43.5	50.2	44.3	56.1	63.7	56.4
San Francisco, Cal	47.8	53.1	50.1	48.6	55.1	51.9	49.8	57.4	52.9	50.5	59.0	53.4	52.1	61.4	55.2
Savannah, Ga	47.0	57.9	51.2	49.2	60.5	53.5	54.5	65.9	58.1	63.0	72.3	64.2	71.2	78.4	70.8
Shaw, Fort, Mont	12.4	19.5	15.4	18.9	28.5	21.9	26.2	42.9	32.0	30.2	49.1	38.6	39.6	58.8	49.1
Shreveport, La	41.3	52.3	45.9	45.0	58.0	51.3	51.7	66.5	58.3	59.0	73.9	64.6	67.7	81.6	71.7
Sill, Fort, Ind. T	30.3	44.0	35.7	35.3	50.9	41.8	43.7	62.7	51.6	52.8	72.7	61.2	62.7	78.5	68.1
Sitka, Alaska	35.6	36.6	35.9	31.8	34.2	33.6	34.4	38.6	37.1	38.2	44.8	43.2	43.9	49.8	48.3
Smithville, N. C	44.0	51.5	46.7	45.4	54.4	48.9	50.2	59.0	53.2	57.8	65.4	59.2	66.3	74.6	67.1
Spokane Falls, Wash. T.	19.6	25.8	24.4	19.9	29.0	26.6	32.6	44.7	41.4	38.8	52.6	48.0	44.2	61.3	57.3
Springfield, Ill	26.9	33.0	28.8	30.4	39.0	35.2	35.3	45.1	39.5	47.1	59.8	52.9	58.1	70.0	64.4
Stockton, Fort, Tex	34.9	56.1	41.5	38.2	60.5	46.5	45.4	69.8	55.5	51.8	78.5	62.9	65.2	84.9	71.3
Thomas, Camp, Ariz	29.7	50.0	40.2	35.9	56.2	47.3	41.8	64.3	55.0	45.6	73.4	61.6	52.0	83.9	70.5
Toledo, Ohio	25.0	31.1	27.2	26.1	33.8	29.7	32.3	40.2	35.4	44.1	52.6	46.2	57.1	66.2	58.2
Unalashka, Alaska	30.4	34.0	33.7	29.2	31.2	31.0	29.8	33.6	33.1	31.2	36.6	35.5	36.9	41.1	41.4
Vicksburg, Miss	43.4	53.6	48.1	46.4	59.3	52.6	52.5	66.6	58.2	59.0	73.5	64.5	67.5	81.2	71.5
Washington City	29.7	37.9	32.1	31.7	42.0	34.6	37.2	48.2	40.5	47.9	59.9	50.3	59.8	72.1	61.2
West Las Animas, Colo	8.4	33.9	18.8	15.0	41.8	27.4	28.1	55.4	42.0	36.9	62.3	49.4	48.0	69.0	56.0
Wilmington, N. C	42.6	52.9	45.6	44.6	55.7	48.0	50.1	60.4	52.9	58.1	67.7	59.0	66.8	75.4	66.8
Yankton, Dak	9.6	22.8	14.3	14.2	28.4	20.5	23.2	37.2	28.9	37.6	54.2	43.4	53.2	67.4	57.6
Yuma, Ariz	45.4	62.5	52.8	49.7	68.3	59.0	53.6	75.8	65.7	56.4	81.0	70.4	64.4	89.3	78.2

Service, United States Army, for each month of the year, &c.—Continued.

Mean temperature.

June.			July.			August.			September.			October.			November.			December.		
7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.	7 a. m.	3 p. m.	11 p. m.
68.3	81.3	70.8	71.7	84.2	74.1	69.1	83.3	72.1	61.5	77.6	65.5	50.4	67.9	55.6	40.4	52.9	44.6	34.1	44.7	38.0
63.2	74.8	68.0	67.6	80.0	72.9	65.2	78.5	70.5	55.6	67.2	60.2	45.0	55.2	49.5	29.8	37.6	32.9	19.2	26.6	22.9
68.4	81.2	72.5	72.2	85.0	76.6	69.7	84.8	75.3	59.8	75.4	65.3	48.2	64.1	54.1	34.0	46.5	38.6	25.9	36.2	29.8
55.9	74.0	69.9	62.0	80.6	78.1	59.9	78.0	76.8	51.6	67.2	62.6	42.6	53.8	49.3	34.0	41.8	37.8	32.7	37.6	35.0
72.4	85.4	77.3	74.4	87.3	79.1	72.0	85.6	76.9	64.6	79.5	70.2	59.8	72.2	64.3	46.3	57.2	50.7	41.1	51.4	45.8
58.1	76.0	62.4	68.3	79.4	64.5	60.8	80.9	66.1	58.7	79.6	65.1	54.1	73.2	60.3	49.3	68.7	55.7	48.0	63.9	53.2
70.7	81.2	72.7	74.6	85.4	77.2	71.0	83.6	74.8	62.4	76.3	67.2	52.2	65.4	57.1	40.7	49.7	44.2	34.6	31.3	37.3
71.7	81.1	71.4	76.1	85.2	75.5	71.9	82.4	73.0	64.1	75.9	65.7	52.7	66.3	55.5	41.0	52.3	43.9	34.5	44.1	37.2
57.2	63.9	55.5	60.2	67.0	60.4	59.3	67.9	58.9	53.8	60.8	54.6	46.1	52.0	47.2	34.7	38.6	36.0	24.2	27.2	25.6
73.8	79.7	73.6	76.9	82.6	76.7	75.8	82.2	76.1	72.7	78.4	73.3	64.7	71.9	66.0	52.1	60.3	58.9	45.1	52.8	47.0
53.7	66.6	54.8	57.4	71.5	58.6	56.8	76.4	61.3	46.8	63.8	50.6	34.4	43.4	35.6	26.6	36.5	29.1	24.4	32.0	25.4
56.9	63.6	56.4	63.8	71.1	62.3	62.1	70.9	62.3	53.2	62.2	53.8	42.9	49.9	44.4	28.8	34.3	30.4	20.3	24.9	21.6
74.6	84.6	75.9	77.8	87.4	78.8	74.4	80.6	76.8	65.1	78.6	69.2	55.7	69.0	60.1	44.3	55.1	48.4	37.9	47.2	42.1
61.3	67.2	61.6	66.6	73.6	67.2	65.7	73.8	67.4	56.6	65.9	59.6	45.4	53.9	48.1	31.4	37.7	34.3	21.7	27.4	24.4
77.1	87.1	78.5	78.6	88.2	80.1	76.8	86.7	79.2	71.5	83.4	75.0	62.2	75.4	66.3	53.1	64.7	56.8	47.2	57.6	51.1
75.1	86.6	77.3	77.7	89.7	80.1	75.4	87.2	78.2	68.7	83.1	73.5	58.8	74.2	64.1	48.8	62.0	53.7	43.7	55.4	47.9
56.1	71.4	62.3	60.2	75.6	66.0	58.9	75.9	65.5	46.6	64.5	53.1	35.6	49.0	41.5	18.1	29.4	21.6	5.6	17.2	9.8
42.1	46.3	42.1	46.3	50.5	46.6	45.6	50.0	46.2	39.5	42.8	39.6	29.6	31.8	29.7	15.8	17.2	16.1	8.3	9.3	9.1
73.7	84.0	74.3	76.4	86.9	77.6	73.5	85.7	76.0	64.4	78.3	68.2	54.1	68.7	58.5	42.4	54.1	46.9	36.0	45.7	40.4
66.4	73.0	64.1	71.5	78.0	69.8	68.3	75.9	67.5	61.2	69.2	61.3	50.2	59.1	51.5	37.6	45.0	39.5	28.2	34.6	30.5
65.4	69.5	62.5	71.1	75.2	68.2	69.2	74.0	67.1	61.5	67.3	60.6	51.3	57.7	51.7	38.4	44.4	39.6	29.3	34.7	31.0
78.9	85.0	79.3	80.5	86.4	81.0	78.9	85.9	80.5	75.2	82.4	76.9	60.8	75.4	69.2	57.3	65.7	60.1	51.9	60.2	54.8
65.8	73.9	66.3	71.2	78.6	71.3	69.4	77.2	70.2	62.4	70.2	63.4	52.3	60.3	54.1	39.7	45.9	40.9	30.7	35.9	32.3
74.0	81.6	71.5	78.2	85.2	75.5	75.4	82.0	73.9	68.2	75.8	68.2	57.7	66.2	59.1	46.6	53.9	48.4	39.1	46.2	41.4
60.1	77.8	66.2	65.6	83.2	71.7	63.4	83.4	70.5	51.3	73.5	59.3	39.6	60.8	47.1	25.2	45.5	31.6	18.8	36.3	23.1
49.2	64.8	61.5	51.5	68.0	64.8	52.6	68.4	63.7	48.8	62.1	56.4	44.9	53.0	48.0	40.5	46.6	43.1	38.8	42.8	40.9
66.2	78.6	70.0	70.6	83.5	74.7	68.2	82.8	73.1	56.2	71.8	61.8	45.3	60.7	51.5	30.0	42.0	34.8	20.6	30.5	24.6
62.0	69.2	62.1	67.9	75.1	68.4	66.8	74.5	68.1	50.2	67.2	60.6	48.9	55.4	50.4	37.4	40.6	38.4	28.5	31.7	29.7
74.6	85.8	78.4	74.6	88.2	79.0	72.4	87.8	78.0	66.3	82.1	73.2	63.4	76.6	68.8	53.0	63.7	57.0	46.4	58.2	51.3
77.9	84.9	78.7	78.2	86.0	79.2	76.8	85.2	79.0	72.1	82.8	75.3	66.8	77.2	70.1	55.2	65.5	58.6	50.9	60.5	54.3
67.9	77.7	68.5	72.8	82.5	73.7	70.6	79.7	71.4	62.7	72.4	64.5	52.2	62.4	54.1	39.9	47.6	42.1	31.7	37.6	33.8
28.9	38.2	31.6	36.4	45.4	38.0	35.0	44.2	37.4	27.0	36.6	29.9	17.6	25.6	19.8	8.1	13.5	9.8	4.6	8.5	5.3
65.3	78.7	68.0	68.7	82.5	71.0	65.4	81.1	69.2	58.2	73.2	62.0	48.7	61.7	51.7	37.2	45.2	39.1	30.7	36.3	32.5
60.4	67.7	60.1	66.2	73.8	66.2	64.4	73.6	66.1	57.2	66.7	58.8	46.4	54.6	48.2	33.5	39.6	35.0	25.0	29.5	26.5
61.9	69.7	60.5	67.6	75.2	66.3	65.2	73.8	63.1	57.7	65.7	58.5	47.5	55.0	48.9	35.8	41.3	37.0	25.2	31.0	27.0
53.5	68.2	63.4	56.6	73.0	69.0	55.9	71.7	66.9	52.9	68.1	61.9	47.8	58.6	52.6	42.0	48.6	44.7	39.1	44.1	41.6
51.9	81.5	68.2	61.4	83.8	73.1	59.8	80.9	69.8	50.3	77.0	62.7	39.6	66.1	50.7	29.0	54.9	38.8	26.7	49.4	35.3
63.6	71.9	60.7	68.0	76.9	65.9	67.0	74.8	65.0	60.4	65.2	59.2	51.8	55.4	51.5	41.8	49.6	41.6	32.0	34.3	32.2
64.4	86.0	80.7	69.0	91.9	86.8	67.0	90.8	84.1	61.7	81.3	74.6	53.3	69.9	62.2	45.2	59.0	51.9	41.6	51.5	46.9
74.4	82.2	78.4	78.6	96.7	83.6	77.9	93.7	80.9	72.8	91.2	79.0	66.8	84.4	72.3	57.9	72.6	62.5	52.5	67.6	58.7
63.3	71.7	62.8	68.0	77.0	67.8	65.9	75.7	66.6	58.6	67.6	59.4	47.3	55.3	48.7	34.4	39.4	34.9	26.4	29.6	27.4
50.8	69.6	64.2	53.7	74.2	69.2	53.1	73.1	68.1	49.6	68.6	62.2	44.0	56.4	50.2	39.2	46.5	42.9	39.0	44.3	41.6
59.0	78.9	70.8	60.7	83.4	73.9	59.8	82.5	72.9	59.0	79.6	70.5	51.4	68.9	61.0	44.4	58.1	52.5	42.0	51.4	47.3
69.6	81.1	73.4	73.7	85.3	77.4	71.0	84.0	75.7	61.5	75.7	67.0	51.2	65.0	56.4	37.7	47.7	42.0	30.3	38.4	34.1
41.3	47.8	49.1	50.1	55.3	56.1	48.6	53.2	53.7	41.5	45.7	45.6	28.8	32.4	31.8	14.7	17.6	16.7	2.6	5.4	4.8
61.5	73.7	65.1	65.9	79.6	69.9	63.5	77.8	68.0	52.2	66.2	57.0	41.9	53.5	45.3	26.4	34.8	29.3	15.2	22.8	18.1
53.7	69.7	58.8	56.9	73.5	62.6	55.6	73.9	62.3	44.0	62.0	50.2	33.1	46.0	38.0	15.3	23.3	17.2	3.5	11.0	5.2
59.4	76.7	66.8	66.9	85.0	74.8	66.2	83.9	74.4	56.3	74.1	63.7	45.9	59.1	50.3	33.7	44.1	37.4	28.9	37.2	31.4
60.5	69.6	63.2	63.5	72.2	65.6	65.0	73.7	67.4	62.7	72.2	65.6	58.1	69.1	61.4	52.5	65.7	56.6	50.0	62.7	54.1
64.8	72.1	66.0	70.6	77.7	72.3	68.7	76.6	71.2	61.5	69.9	63.9	52.3	59.4	54.7	38.7	44.4	40.4	31.3	34.5	32.2
66.4	73.6	66.0	72.2	79.2	71.8	70.4	77.4	70.8	64.4	71.0	65.3	54.4	60.7	55.6	42.5	47.4	44.0	32.8	37.3	34.5
54.3	64.0	57.3	54.6	63.1	56.8	55.0	63.5	57.2	55.7	65.4	58.4	55.2	64.2	58.5	52.2	59.0	55.7	48.8	58.9	52.1
78.8	85.0	77.4	81.6	87.3	79.9	78.6	85.1	78.3	72.8	80.6	74.0	62.4	72.5	65.4	52.9	63.7	56.7	46.9	58.8	51.8
49.0	68.4	59.4	51.4	75.4	64.0	50.2	75.3	63.9	43.8	64.3	52.2	34.0	46.0	37.6	24.4	34.4	26.9	22.7	30.7	25.0
75.1	88.6	78.4	77.5	90.8	80.4	76.4	90.1	79.8	68.2	83.1	72.4	58.9	74.9	64.9	48.0	61.8	53.3	43.2	55.5	48.0
70.6	86.7	76.1	73.3	89.6	79.4	71.3	89.5	78.3	62.8	83.1	70.8	54.2	72.6	61.0	39.4	56.9	45.4	31.1	47.1	36.9
48.3	53.1	52.1	50.7	55.2	53.8	51.8	57.5	56.6	50.0	54.7	53.0	43.5	48.2	45.9	37.8	39.5	38.3	35.8	36.7	36.4
75.0	81.5	75.0	78.7	85.6	78.9	76.7	84.0	78.0	71.3	79.0	72.9	62.4	70.7	64.5	50.5	60.0	53.6	43.8	52.4	47.1
52.2	70.2	66.8	55.8	77.0	73.2	54.0	75.8	69.8	47.1	65.1	57.9	38.5	48.6	44.4	31.3	38.8	35.7	28.4	34.4	31.9
66.6	77.6	70.3	70.9	83.8	75.2	68.1	82.1	73.3	58.3	73.8	64.1	51.8	63.4	56.0	37.0	46.3	40.8	29.1	35.4	32.3
69.0	90.4	77.9	70.8	90.4	79.2	67.8	88.3	76.5	61.6	82.5	70.0	53.9	75.0	61.6	41.5	62.1	47.4	36.6	57.0	43.1
62.0	94.6	81.4	71.2	93.6	82.6	70.3	90.2	79.5	59.8	85.2	73.3	43.7	73.4	59.6	34.3	60.0	47.1	33.4	54.3	43.5
67.1	75.1	67.2	70.8	79.9	71.6	67.7	77.9	70.0	59.1	70.1	62.0	49.0	58.7	52.3	36.3	43.0	38.7	28.4	33.5	30.5
43.6	47.6	47.5	47.2	50.6	51.1	47.8	53.7	53.6	45.4	50.0	49.4	38.4	42.8	42.3	32.3	36.1	35.3	30.9	31.7	31.3
75.6	87.3	77.4	77.2	89.1	79.3	75.3	88.4	77.9	68.3	83.2	72.9	59.2	74.2	63.7	49.3	62.1	53.7	44.9	56.4	49.5
70.1	80.7	70.3	74.4	85.2	74.8	70.8	81.8	71.8	63.1	75.1	64.6	51.9	64.8	54.5	39.8	49.8	42.3	32.0	40.1	34.7
58.8	80.6	68.6	63.2	88.0	74.0	60.9	85.7	72.5	51.4	78.2	63.6	41.5	64.0	51.6	22.2	53.4	33.0	22.3	44.3	26.5
75.0	82.1	73.4	78.2	85.9	77.4	75.9	83.6	76.3	69.8	78.9	71.1	59.4	70.4	62.0	49.4	60.6	52.4	42.6	53.7	46.2
62.4	76.4	66.1	67.2	81.7	71.8	64.2	82.3	71.0	52.2	71.8	58.7	40.8	58.5	46.8	25.7	40.2	29.8	15.9	28.0	19.7
71.7	99.4	87.4	80.5	103.4	93.4	80.2	101.7	91.3	72.1	96.7	84.2	61.5	83.8	70.9	51.4	71.2	59.0	47.4	66.0	54.7

APPENDIX 35.

Mean temperature (in degrees Fahrenheit) and average precipitation (in inches and hundredths) at Signal Service stations, for each season of the year (computed from the commencement of observations to December 31, 1883).

[The seasons comprise the following months: Spring: March, April, and May; Summer: June, July, and August; Autumn: September, October, and November; Winter: December, January, and February. The mean temperature is deduced from the three telegraphic observations, taken at the same moment of Washington time.]

Stations.	Established.	Mean temperature.				Average precipitation.			
		Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.
		°	°	°	°	*In.*	*In.*	*In.*	*In.*
Albany, N. Y	Dec. 22, 1873	45.6	70.5	51.1	25.5	8.69	11.95	9.26	8.18
Alexander, Fort, Alaska	Aug. 1, 1881	(*)	(*)	(*)	(*)	5.55	......	......	8.82
Alpena, Mich	Sept. 10, 1872	36.5	63.3	44.7	20.5	7.99	11.33	12.05	6.19
Apache, Fort, Ariz	Oct. 9, 1877	50.9	69.8	52.1	35.8	2.36	10.78	4.67	4.49
Assinaboine, Fort, Mont	Oct. 6, 1879	41.0	65.2	39.7	15.3	2.92	4.44	3.19	3.22
Atlanta, Ga	Sept. 25, 1878	61.3	76.9	61.9	46.4	15.46	10.59	11.00	19.81
Atlantic City, N. J	Dec. 10, 1873	47.8	70.4	56.1	33.8	9.90	11.54	10.00	10.71
Augusta, Ga	Nov. 2, 1870	64.2	80.4	64.3	48.6	13.59	13.49	10.49	12.70
Baltimore, Md	Jan. 1, 1871	53.2	76.0	56.9	36.2	9.98	12.46	10.35	9.21
Barnegat City, N. J	Dec. 10, 1873	46.8	70.2	55.5	32.9	12.24	12.84	13.41	13.30
Behring's Island, Behring Sea	May 22, 1882	29.7	47.4	......	27.1	2.02	6.40	......	5.80
Bennett, Fort, Dak	Dec. 22, 1879	42.7	70.2	44.5	16.8	6.14	7.08	2.44	2.07
Benton, Fort, Mont	Oct. 11, 1879	42.3	67.1	42.2	18.1	4.69	4.54	2.81	2.03
Bismarck, Dak	Sept. 15, 1874	39.0	67.0	41.2	10.9	7.46	8.56	3.88	1.88
Block Island, R. I	Sept. 1, 1880	43.4	66.8	54.9	33.0	12.36	11.21	13.37	15.63
Boise City, Idaho	July 1, 1877	49.6	70.3	48.5	31.7	3.56	0.76	2.84	6.18
Boston, Mass	Nov. 1, 1870	44.9	69.1	51.1	28.1	12.46	11.85	12.73	11.11
Brownsville, Tex	Aug. 25, 1875	74.5	83.7	73.6	60.5	4.68	9.74	11.20	6.38
Buffalo, N. Y	Nov. 1, 1870	42.0	68.0	50.0	26.4	8.33	9.58	10.66	8.50
Buford, Fort, Dak	Oct. 23, 1878	39.0	65.7	40.0	9.1	4.41	6.78	2.36	2.78
Cairo, Ill	June 1, 1871	58.1	77.7	58.2	38.3	12.81	11.36	9.95	12.29
Cape Henry, Va	Dec. 15, 1873	55.1	76.0	62.2	42.3	15.23	15.29	14.43	13.14
Cape May, N. J	May 21, 1871	49.0	71.7	57.6	35.6	11.10	12.95	11.72	11.99
Cape Mendocino, Cal	July 27, 1882	48.8	53.6	53.6	46.0	6.25	0.02	5.05	8.02
Cedar Keys, Fla	Nov. 7, 1879	70.2	82.0	72.4	60.2	9.12	24.92	12.96	11.62
Charleston, S. C	Jan. 5, 1871	64.9	81.2	66.7	50.9	14.20	19.69	14.95	11.13
Charlotte, N. C	Oct. 6, 1878	59.5	77.7	61.2	43.4	12.09	13.69	10.62	15.67
Chattanooga, Tenn	Jan. 8, 1879	60.1	76.6	61.0	44.4	16.00	11.29	12.87	19.75
Cheyenne, Wyo	Nov. 1, 1870	41.3	64.7	44.1	26.9	3.65	4.63	1.90	.50
Chicago, Ill	Nov. 1, 1870	46.0	70.0	51.4	27.8	10.48	11.07	9.64	6.43
Chincoteague, Va	Mar. 16, 1880	50.1	72.4	59.6	36.6	8.13	10.89	9.75	12.45
Cincinnati, Ohio	Nov. 1, 1870	54.6	76.1	56.6	36.3	10.70	13.68	8.76	11.09
Cleveland, Ohio	Nov. 1, 1870	45.8	70.0	51.9	28.3	8.82	11.95	9.68	7.96
Coleman City, Tex	July 1, 1877	64.2	80.0	61.4	44.3	7.06	9.38	8.37	4.89
Columbus, Ohio	July 1, 1878	51.2	73.0	54.4	32.3	11.43	12.08	9.87	11.14
Concho, Fort, Tex	Oct. 10, 1875	65.8	80.6	63.0	46.0	6.00	10.51	8.83	3.62
Custer, Fort, Mont	Dec. 5, 1878	44.2	68.4	44.6	20.8	5.39	4.40	2.20	2.29
Davenport, Iowa	May 24, 1871	48.6	73.1	51.1	25.7	10.05	12.61	8.14	4.95
Davis, Fort, Tex	Dec. 24, 1877	61.5	73.5	58.2	45.8	2.30	11.99	4.35	1.18
Dayton, Wash. T	July 1, 1879	48.8	65.5	47.8	31.6	7.82	2.14	5.86	13.24
Deadwood, Dak	Dec. 25, 1877	40.5	63.5	42.2	23.4	13.21	8.45	3.12	3.49
Delaware Breakwater, Del	Jan. 28, 1880	49.5	71.4	59.8	36.0	6.64	9.00	7.95	8.97
Denver, Colo	Nov. 19, 1871	47.6	69.8	49.3	29.9	5.62	5.03	2.49	1.69
Des Moines, Iowa	Aug. 1, 1878	48.7	72.3	51.1	23.8	10.52	16.36	10.25	4.30
Detroit, Mich	Nov. 1, 1870	45.1	69.7	50.5	26.7	8.96	11.02	8.10	7.34
Dodge City, Kans	Sept. 15, 1874	52.9	75.3	53.5	30.6	6.28	8.91	3.13	1.49
Dubuque, Iowa	July 10, 1873	47.5	71.9	49.5	23.6	9.15	14.45	10.49	4.57
Duluth, Minn	Nov. 1, 1870	37.3	63.7	43.3	15.4	7.67	13.14	9.46	3.33
Eastport, Me	Apr. 1, 1873	37.9	58.8	46.0	22.4	13.15	12.26	13.21	10.18
Elliott, Fort, Tex	Nov. 29, 1879	55.2	74.2	54.6	34.0	6.41	8.01	6.03	0.85
El Paso, Tex	Nov. 5, 1877	64.6	80.5	62.2	47.5	1.08	6.17	2.51	1.72

* No record.

Mean temperature (in degrees Fahrenheit) and average precipitation, &c.—Continued.

Stations.	Established.	Mean temperature.				Average precipitation.			
		Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.
		°	°	°	°	*In.*	*In.*	*In.*	*In.*
Erie, Pa	May 25, 1873	45.0	70.2	52.6	29.8	9.26	10.49	13.11	9.80
Escanaba, Mich	May 24, 1871	35.9	64.2	44.1	17.6	7.57	12.51	10.40	4.14
Fort Smith, Ark	June 1, 1882	59.4	77.8	62.3	37.8	11.18	7.44	13.72	10.07
Galveston, Tex	Apr. 19, 1871	69.9	83.5	71.3	55.4	10.21	13.47	17.08	11.64
Grand Haven, Mich	May 24, 1871	43.4	67.5	49.4	27.0	8.73	10.87	11.11	6.65
Grant, Fort, Ariz	Nov. 1, 1875	59.2	76.0	60.5	44.6	1.59	8.63	2.62	2.69
Hatteras, N. C	Dec. 1, 1880	56.6	77.2	66.3	45.4	18.12	17.46	20.81	18.27
Helena, Mont	Oct. 15, 1879	42.4	65.2	42.1	20.0	2.89	3.69	4.25	3.87
Henrietta, Tex	Feb. 1, 1877	63.6	81.7	63.8	41.6	7.30	9.48	5.29	3.32
Huron, Dak	July 1, 1881	41.4	67.6	44.5	17.1	8.25	13.16	4.78	0.66
Indianapolis, Ind	Feb. 10, 1871	52.4	74.5	53.8	32.1	11.97	14.65	9.95	9.89
Indianola, Tex	May 1, 1872	70.4	82.9	71.4	55.7	7.20	9.29	13.25	7.52
Jacksonville, Fla	Sept. 11, 1871	69.0	81.5	69.8	56.6	10.48	17.76	16.82	9.83
Keokuk, Iowa	July 16, 1871	50.9	75.3	53.0	28.3	9.81	13.37	9.30	5.60
Key West, Fla	Nov. 1, 1870	76.8	83.9	78.9	70.8	6.45	13.74	14.69	6.07
Kitty Hawk, N. C	Jan. 15, 1875	55.4	76.3	63.0	43.6	14.90	19.58	16.52	15.26
Knoxville, Tenn	Jan. 1, 1871	57.3	75.0	57.4	39.7	14.67	12.89	10.49	15.22
La Crosse, Wis	Oct. 15, 1872	46.3	71.2	48.1	20.8	7.39	13.58	9.52	3.60
Leavenworth, Kans	May 21, 1871	53.1	76.2	54.0	29.9	11.02	13.88	9.03	4.78
Lewiston, Idaho	July 1, 1879	50.4	70.6	48.6	32.3	3.56	2.06	4.11	8.07
Little Rock, Ark	July 1, 1879	62.6	79.0	62.7	45.9	17.41	11.11	11.97	16.01
Los Angeles, Cal	July 1, 1877	58.4	67.6	62.7	53.5	4.28	0.02	1.57	8.86
Louisville, Ky	Sept. 11, 1871	55.7	76.8	57.2	37.3	12.90	12.44	9.79	13.10
Lynchburg, Va	May 24, 1871	56.1	76.5	57.5	38.7	10.26	10.78	9.98	9.74
Mackinaw City, Mich	Aug. 20, 1882	32.7	61.1	47.1	19.2	6.69	9.88	9.14	12.10
Macon, Fort, N. C	May 23, 1878	58.2	77.5	65.9	46.9	15.09	20.11	15.14	14.56
Maginnis, Fort, Mont	July 14, 1882	38.1	62.1	40.7	19.6	3.58	1.71	3.88	2.92
Marquette, Mich	May 1, 1871	37.0	63.2	44.4	19.8	5.92	10.74	11.23	4.07
Memphis, Tenn	Feb. 28, 1871	61.4	79.5	60.6	42.8	17.47	11.33	11.38	14.89
Milwaukee, Wis	Nov. 1, 1870	42.1	67.1	48.0	23.3	9.63	10.27	8.18	5.68
Mobile, Ala	Nov. 7, 1870	67.2	81.4	67.6	52.6	18.34	19.53	13.71	14.14
Montgomery, Ala	Nov. 9, 1870	65.3	80.8	65.2	50.4	17.24	11.40	9.25	15.78
Moorhead, Minn	Jan. 1, 1881	36.0	65.8	39.9	6.5	6.55	12.12	7.54	3.04
Mount Washington, N. H	Dec. 1, 1870	21.4	46.2	29.1	6.8	19.70	26.95	22.45	18.84
Nashville, Tenn	Nov. 1, 1870	59.8	78.7	59.5	41.3	14.54	12.63	10.54	14.23
New Haven, Conn	Dec. 10, 1872	46.5	70.5	52.8	29.6	13.32	13.67	12.15	11.76
New London, Conn	Jan. 10, 1871	45.6	69.1	52.5	30.0	12.21	12.82	12.06	10.64
New Orleans, La	Nov. 1, 1870	68.9	81.9	69.7	55.9	17.70	18.82	13.38	14.84
New York City	Nov. 1, 1870	47.6	71.6	54.5	31.5	10.06	12.40	10.36	9.66
Norfolk, Va	Jan. 1, 1871	57.0	77.5	60.5	41.9	12.18	15.65	12.77	11.65
North Platte, Nebr	Sept. 18, 1874	47.2	71.3	48.2	24.5	5.47	9.32	3.29	1.79
Olympia, Wash T	July 1, 1877	48.3	60.5	49.3	39.3	13.30	2.57	16.74	31.03
Omaha, Nebr	Nov. 1, 1870	49.4	74.2	50.5	24.6	9.92	15.64	7.83	2.40
Ooglaamie (Point Barrow), Alaska	Oct. 17, 1881	3.3	36.6	11.0	−19.2	1.18	3.19	2.73	1.08
Oswego, N. Y	Nov. 1, 1870	43.2	68.2	50.9	27.5	8.09	9.37	9.36	9.17
Palestine, Tex	Dec. 3, 1881	66.3	79.8	67.1	49.3	12.54	10.29	17.20	9.24
Pensacola, Fla	Oct. 27, 1879	67.9	80.6	69.3	56.3	13.42	23.48	16.32	15.49
Philadelphia, Pa	Jan. 1, 1871	50.5	73.9	55.3	33.2	9.21	13.09	9.97	8.78
Pike's Peak, Colo	Nov. 1, 1873	14.3	37.2	21.2	4.1	9.87	11.41	5.73	4.39
Pittsburg, Pa	Nov. 1, 1870	50.1	72.4	53.0	32.1	8.33	11.76	7.89	8.15
Poplar River, Mont	May 1, 1882	(*)	(*)	(*)	(*)	3.54	1.86	2.68	1.37
Port Huron, Mich	July 25, 1874	41.3	66.5	48.8	24.5	9.54	9.97	8.31	6.76
Portland, Me	Jan. 15, 1871	43.6	67.2	49.7	26.3	8.95	10.40	10.67	9.04
Portland, Oreg	Nov. 1, 1871	51.5	64.4	53.0	41.0	13.19	8.34	13.94	23.89
Prescott, Ariz	Nov. 19, 1873	50.7	70.0	52.1	35.5	2.18	5.86	2.32	3.88
Provincetown, Mass	Feb. 15, 1882	41.9	68.2	52.4	30.2	11.96	5.68	13.74	15.33
Red Bluff, Cal	July 1, 1877	60.0	80.2	63.5	47.0	7.08	0.21	4.44	17.12
Rio Grande City, Tex	May 28, 1875	76.1	85.0	73.3	60.5	4.57	8.41	5.56	3.82
Rochester, N. Y	Nov. 1, 1870	43.4	68.8	49.6	25.8	9.36	9.73	8.63	9.12
Roseburg, Oreg	July 15, 1877	51.1	64.2	51.6	41.5	8.80	1.83	7.93	17.78
Sacramento, Cal	July 1, 1877	58.5	71.3	60.6	47.4	7.69	0.12	2.53	11.37
Saint Louis, Mo	Nov. 1, 1870	54.8	76.8	55.9	34.1	10.25	11.74	8.12	7.51
Saint Michael's, Fort, Alaska	June 28, 1874	20.0	......	......	3.4	1.85	......	......	1.87
Saint Paul, Minn	Nov. 1, 1870	43.8	69.5	46.2	17.4	7.45	12.18	6.89	3.40
Saint Vincent, Minn	Sept. 5, 1880	32.3	63.0	36.5	1.7	4.45	7.27	5.40	1.51
Salt Lake City, Utah	Mar. 19, 1874	49.2	72.6	51.6	31.4	6.42	2.18	4.26	4.12
San Diego, Cal	Nov. 1, 1871	58.1	66.7	62.7	54.4	1.91	0.30	1.24	6.06
Sandusky, Ohio	Aug. 2, 1877	48.4	71.0	53.9	31.1	9.03	13.39	10.72	8.35
Sandy Hook, N. J	Dec. 10, 1873	47.4	72.0	56.1	32.6	14.15	13.19	12.62	11.27
San Francisco, Cal	Mar. 8, 1871	54.6	58.4	58.2	51.4	5.39	0.18	3.98	14.08
Savannah, Ga	Jan. 1, 1871	66.5	81.3	66.8	52.7	11.93	19.29	11.69	10.07
Shaw, Fort, Mont	Apr. 1, 1880	40.7	61.9	40.4	21.4	3.25	4.75	3.50	2.17

* No record.

Mean temperature (in degrees Fahrenheit) and average precipitation, &c.—Continued.

Stations.	Established.	Mean temperature.				Average precipitation.			
		Spring.	Summer.	Autumn.	Winter.	Spring.	Summer.	Autumn.	Winter.
		°	°	°	°	*In.*	*In.*	*In.*	*In.*
Shreveport, La	Sept. 3, 1871	66.2	81.9	65.0	49.0	15.46	9.41	13.18	14.72
Sill, Fort, Ind. T	June 23, 1875	61.5	79.4	60.7	39.3	8.82	11.18	6.88	5.17
Sitka, Alaska	Mar. 30, 1881	41.9	53.2	45.7	35.1	17.39	14.77	31.17	33.12
Smithville, N. C	Oct. 15, 1875	61.4	79.3	64.9	48.1	10.83	15.17	15.92	10.99
Spokane Falls, Wash. T	Feb. 5, 1881	46.8	66.1	45.3	27.0	4.32	2.29	6.26	9.85
Springfield, Ill	July 1, 1870	52.5	74.2	54.7	32.0	13.10	12.36	11.12	11.03
Stockton, Fort, Tex	Feb. 26, 1876	64.7	78.9	61.7	45.9	2.51	7.00	7.46	1.40
Thomas, Camp, Ariz	Sept. 22, 1877	60.9	80.6	59.3	48.2	1.59	4.89	1.16	2.13
Toledo, Ohio	Nov. 1, 1870	47.6	71.9	52.1	29.4	7.68	10.56	8.32	6.56
Unalashka, Alaska	Aug. 18, 1878	35.5	48.7	39.7	31.4	14.62	7.25	26.42	21.84
Verde, Fort, Ariz	Nov. 9, 1874	60.7	80.0	60.4	42.3	1.96	5.57	2.52	2.58
Vicksburg, Miss	Sept. 10, 1871	66.0	80.8	65.3	50.4	19.13	11.38	13.82	15.42
Washington City	Nov. 1, 1870	53.0	75.5	56.5	34.9	10.09	13.28	10.26	8.93
West Las Animas, Colo	Oct. 1, 1881	49.7	72.4	50.5	25.7	4.36	5.01	1.26	0.49
Wilmington, N. C	Jan. 1, 1871	61.9	78.7	63.7	47.8	11.92	20.09	14.48	11.12
Yankton, Dak	Apr. 1, 1873	44.8	71.5	47.2	19.2	8.96	12.11	5.12	2.14
Yuma, Ariz	Nov. 18, 1873	70.5	89.9	72.3	56.2	0.18	0.48	0.16	1.26

APPENDIX 36.

Maximum and minimum temperatures and annual range of temperature (in degrees Fahrenheit)

[Obtained from self-

Stations.	1883.											
	July.		August.		September.		October.		November.		December.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	94	53.8	87.5	49.3	80	41.7	77	32.6	67.5	22	55	— 8.5
Alpena, Mich	84	45	87	40	73	29.3	74	26.3	57	2.3	52	— 0.3
Apache, Fort, Ariz	97	51	92	50	96	37	79	22.7	72	16	61.5	15
Apache Pass, Ariz	......	......	......	......	......	(1)	84.9	34.7	77.2	31.5	68.5	25.5
Ashland, Oreg	......	......	......	......	......	......	......	......	......	......	......	......
Assinaboine, Fort, Mont	93	42	90	88	83	28	62	22	62	—23	51	—17
Atka, Alaska	72	38	68	40	60	35	53	31	57	22	41	18
Atlanta, Ga	95	63.5	91.2	60	90	52	86	44	76.5	20	65	21.8
Atlantic City, N. J	94	57	91	55	80	45	75	39.8	63	18.7	57.6	11
Augusta, Ga	100	71.7	96	63	94.5	55.5	92	49	82.5	28	74	28.8
Baltimore, Md	96	62	92	59	81	46	82.5	40.5	71	23	60	17
Barnegat City, N. J	91	59.5	86	58	77	48	74	40.3	63	24	57	11
Bennett, Fort, Dak	99.5	47	98	42	95	27	88	20	63	— 4	56	—19
Benton, Fort, Mont	94	44	92	37	84	30	67	21	61	—22	60	—10
Bidwell, Fort, Cal	......	......	......	......	......	......	......	......	......	......	......	(1)
Bismarck, Dak	92	43	92	42	92	16.5	73	20	60	—14	54	—24
Block Island, R. I	82	55	81	56	75.5	41.5	71	39	63.5	23.8	58	— 1
Boisé City, Idaho	(4)	(4)	105	49	94.3	35.5	73	26	58	19.3	(4)	(4)
Boston, Mass	96	51	91.8	48	79	41	80.4	29.4	68.8	14	58	—12
Brownsville, Tex	98	69	101	70	96	57	92	56	88.6	46	80	38
Buffalo, N. Y	79.7	51.7	83.5	47	80.5	35.6	77.8	29.8	66	17.4	57.6	6
Buford, Fort, Dak	96	40	96	36	91	18	74	14	58.3	—19.3	[5]46	—34[5]
Cairo, Ill	92	60	92.5	61	89	47	85	38.5	73.5	15.3	71	13.8
Canby, Fort, Wash	......	......	......	(7)	86.4	48.5	60.2	40.2	56.8	33.5	57	29.6
Cantonment, Ind. T	......	......	......	......	......	......	......	......	......	......	......	(1)
Cape Henry, Va	96	65	92	62	85.5	59	89	48	81	26	68.7	21
Cape May, N. J	89	59	86	57	80	44.5	74	38	64	22	57	14
Cape Mendocino, Cal	69	45	68	46	90	46	64.5	43	72	38	71	40
Cedar Keys, Fla	92.5	69.4	96	72.2	90.3	65.5	87.5	59	80.2	43.3	75.4	30.2
Charleston, S. C	101	71	96	65	90	58	93	53	80	30	75	29.3
Charlotte, N. C	97.5	64.5	94	60.2	91.8	51	85	46	78.2	19.8	66.6	22.6
Chattanooga, Tenn	97	62	93	60.5	91	51	83	44	76	17	66	22
Cheyenne, Wyo	94.2	40.9	90.2	36.2	83.2	30	73.4	6.8	66.1	16.2	60.2	—10.8
Chicago, Ill	91	50.9	89	54.5	83.5	42	78.5	38	62	10	57	0.5
Chincoteague, Va	92	63	90	61	82	52	83	44	72	24	63	21.5
Cincinnati, Ohio	94	60.5	91.5	58	88	46	82	39.6	74.1	18.8	64	18.8
Cleveland, Ohio	92	49.6	92.5	47.8	86.7	38.5	82.8	33.6	70.5	14.6	60.8	11.3
Coeur d'Alene, Ft., Idaho	95	40	96	39	83	30	71	25	59	14	50	18
Columbus, Ohio	94	54	93	50	88	39	84	35	71.5	12	59	12.4
Concho, Fort, Tex	101.8	66	103.4	61	96.0	46.8	93.4	37.5	82.3	26.5	77	22
Craig, Fort, N. Mex	......	......	......	......	......	......	......	......	......	......	......	(1)
Custer, Fort, Mont	101	41	101	36	95	31	78	20	68	—19	58	—13
Davenport, Iowa	92	52	88.2	49	85.7	38	82.2	31	62.2	6	59	— 2
Davis, Fort, Tex	97	58	97	53	94	37	87	37	81.6	25.1	75	12
Dayton, Wash. T	98	42	99.5	36	91	30	66	22	66	21.3	55.6	— 7.6
Deadwood, Dak	89	42	87	42	84	31	71	22.2	65.7	6.7	58.7	— 8
Delaware Br'kwater, Del.	89	62	87	64	79	53	79	45.5	70	25	61	19.3
Denver, Colo	95.5	52	91	50	87.7	40	75.2	25	73.2	23.4	62	2
Des Moines, Iowa	97	54	91	48	90	37	80	28	67	6	57	—10.2
Detroit, Mich	91	50	89	48.6	81	29.8	78	34.4	67	14	58	11
Dodge City, Kans	99	56	92	53	97	39.5	90	26	73	14	67	2
Dubuque, Iowa	96	50.8	91.8	49.3	84	34.5	84.8	31.2	62	7.2	57.7	— 5.8
Duluth, Minn	99	47	85.7	48	79	30	64	21	54	— 8	51	—22
Eastport, Me	76	47.5	81.6	48	75	40	63.4	29.3	57.7	11.8	46.6	—17
Elliott, Fort, Tex	96	54	95	58	10	40	86	27.5	77	20	72	6.2
El Paso, Tex	110	62	102	58	99	45	90	28.8	80.1	28.2	73.6	12.5
Erie, Pa	88	52	92	50	84	42	82	36	68	19	57	10
Escanaba, Mich	80	45	80	40	78	26	64.5	27.8	55	— 1.5	45	— 9
Fort Smith, Ark	99.9	64	100.3	60.8	98.1	39.6	94	39.3	78.4	25	78.1	19.6
Galveston, Tex	94	74	95	75	90	63.5	87	54.5	81	43	75	41
Grand Haven, Mich	81	52.5	81	45.2	78.5	37.3	73	29.3	60.7	15.2	55	10
Grant, Fort, Ariz	95.4	61,3	91.2	61,2	91.7	51	83.3	36.4	67.3	28.8	65	23.6
Hatteras, N. C	90	67.5	92	67	85.4	63	82	52	77	33	68	30.5

[1] Station opened.
[2] 25 days only.
[3] 19 days only.
[4] Record incomplete.
[5] 27 days only.

APPENDIX 36.

at stations of the Signal Service, United States Army, July, 1883, *to June,* 1884, *inclusive.*

registering thermometer.]

1884.												Annual range.
January.		February.		March.		April.		May.		June.		
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
°	°	°	°	°	°	°	°	°	°	°	°	°
50	— 4	50.6	8.6	55.7	10	71.2	30	85.2	38.8	91.5	50.7	102.5
40.5	—20	38	—17	54	—19	65	20.5	80.3	30.2	85	40	107.0
59.8	6	69.2	8.2	66.2	15.3	77	24.8	85.3	31	96.3	38.1	91.0
67.5	1	68.7	18.5	72.5	32	85	25	[3]93	[3]34	103	51.5	....
....	(1)	[3]70	[3]— 4	(4)	20	(4)	26	93	33	91	60	....
42	—30	41.8	—35	56.6	—25.8	72.8	15.7	86.1	32	98.6	46.5	133.6
45	20	46	20	44	22	50	21	....	....	....	....	....
64	— 1.3	73	11	76.5	24.5	82.3	35	85	55	89	57	96.3
50	4	54.6	11	60.2	8	67	29.5	78.1	41	87.2	49	90.0
68	14	78	24	82	27.5	87.8	40	90	54.5	92	57.5	86.0
52	8	68.2	10.5	64.5	14	79.7	34	89	44.9	92.6	52.8	84.0
52	7	56.8	13	63	11.3	61.9	32.3	81.2	42.4	82.8	48.1	84.0
49	—31	50.2	—32.5	70.9	—11	74	19	86	31.8	97.3	48.5	132.0
47	—24	51.5	—35	57.1	13.2	74.2	18.1	88.5	30	100.2	44.1	135.2
51	12	67	—21	60	15	74.8	25.6	[6]86	[6]29	93.5	36.2	....
42	—40	44	29	58.5	—14.4	69.8	17.0	80.1	29.1	92	48.7	132.0
54	8	54	10.5	55.3	10	59.5	30.3	72.2	39.5	82.6	46.2	83.6
61.5	2	57	— 8.5	58.9	28.8	71.5	36.2	83	35.4	94.8	48	....
52.2	— 0.5	59	8	60.5	4.5	69	27	87.5	35	92.6	42	108.0
80	24.8	84.6	33	92.3	35.6	95.2	47	92	57.8	94.3	67.3	76.2
45.7	—13.5	55	— 7.4	60.9	— 2	71.8	26.2	76.9	35.8	85.1	47.9	98.6
46	—41	45	—40	58.8	—22.7	76.2	11.8	[6]85.5	[6]25.2	98.9	43.8	139.9
65.5	—16	69	12	71	19	80	37.7	82.5	49	92	56	108.5
55	32.3	68	16	64.2	33.5	78.2	40.9	76	42.6	68	47.6	....
(4)	— 4.8	74	— 0.7	[6]78.9	[6]14.2	86	31.4	90.1	36	[6]92.8	[6]56.3	....
68	12	74	19	76	22	79	38	92	47.1	89.8	51.4	84.0
50.5	11	54	18	54.5	13	63.5	32	80	43	86	49	78.0
61.5	36.5	68.5	28.5	63.5	36	63.1	38.3	69.5	42.1	64.9	46.6	61.5
68.9	25.2	77.4	37.2	78.9	42.2	84.8	50.7	90	60.5	91	62	70.8
70	13	76	27.5	81.2	34	86.4	43.5	91.3	60.5	89.1	58.2	88.0
62.8	5	75	17.8	75	23	81.8	38.4	88.5	46.6	91	51.5	92.5
62	— 1	70	11	78	22.8	84.5	34.5	89	51.6	91.5	55.4	98.0
50.2	—11	50.1	—28.2	58.9	1.5	69.9	18.3	79.8	22	93.4	43.2	122.4
49.3	—18.5	53	— 2.8	59.2	— 0.9	77.2	31	78	40	86.4	47	109.5
54.8	8	58.6	18	61.2	15	72.2	34.6	84.5	46.2	88.6	50.1	84.0
59.7	— 9.7	66.9	6.4	71.8	13.9	80	31.7	85	43.6	93.1	58.8	103.7
51.8	—13	64.2	— 3.5	64.8	— 1.5	75.9	27	83.8	38	84	51.1	105.5
50	— 2	60	—20	80	Zero.	78	22	85	23	89	40	116.0
48.5	—20.3	62.5	Zero.	66.9	6	77	30	85.5	39	92	55	114.3
72	4	79.5	17.3	85.7	27	93.4	33.3	95.5	45.9	99.7	54.3	99.4
61.6	7.8	70.5	9	72	20	84.5	30	92.5	30	[2]104	[2]49	....
49	—17	47	—31	60	—13	74	18.5	84	24.5	94.3	46	132.0
47.2	—27	47.7	— 4	65	— 8	78.7	24	79.7	38	88.2	43.7	119.0
73.1	6	76.2	20	77.1	30.1	80.1	27	87.9	40	97	52	91.0
57.1	— 1.5	58	—21.5	63.9	21.2	77.9	32.5	87.3	35.5	97.5	38	121.0
59.1	—14.5	50	—26.8	52	— 7.2	62	13	71.5	28	91	43	117.8
53	9	63.5	15	62.4	15.3	70	35	81.3	45.5	84.1	52.8	80.0
59	— 2	61.3	—15	61.1	10.9	70.3	22.5	80.5	28	90.2	48	110.5
48.7	—30.4	53.9	— 8.2	70.1	— 5.6	73.9	25.8	80.1	34.6	94.7	47.2	127.4
51.5	— 6	64.3	— 5.8	62	3	70.3	30.1	81.1	35.9	90	48	97.0
66.5	—11	65	— 5	76	6	80	26	87	32	92.5	52	110.0
44	—23.8	41.7	— 7.5	65.2	— 8.8	81	27	81	38.7	90.2	46.7	119.8
44.9	—31	30.2	—19.4	53.8	—16.9	59.7	24.8	79.5	33.2	85.1	39.8	130.0
45	— 8	45	4.5	48	— 0.6	57	28	72.8	34.2	82	39.3	99.0
75	0.7	74.2	1.5	80	16.5	86	28	89.6	36	[5]93	[5]53.2	....
72.2	11.8	78.8	22.2	80.4	26.4	91	33.9	102.8	39.5	111.8	57.4	100.0
48.5	—10	63	— 7	[9]64.3	— 1	76	26.9	86.5	36.8	87.8	51.4	102.0
38.2	—17.5	37.8	—29.3	52.8	—26.8	60	19	71.4	30.6	81	42.8	110.3
68.6	— 5	75.4	9.5	82.8	23.5	88	35.3	91.6	46	99.5	54	105.3
70.5	22	75	28.5	77.3	41.2	81	48.4	84.4	59.7	90.6	66	78.0
43	— 8.5	51	— 2	59.8	55.5	71.8	28.5	75	37	83.6	49	92.1
59.4	18.8	72.7	20.3	66.2	30.2	77.7	32.4	86.7	38.6	99	[8]53.1	80.2
68	15	71	27	69.8	26	69.1	41.6	80.5	48.2	83.2	56.5	77.0

[6] 26 days only.
[7] Observation began September 1, 1883.
[8] 22 days only.
[9] 18 days only.

Maximum and minimum temperatures and annual range of temperature

Stations.	1883.											
	July.		August.		September.		October.		November.		December.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°	°	°
Helena, Mont	90	46	87	38	81	39	68	23	60	—14	52	— 5.5
Hoochnahoo, Alaska	79	40	72	41	63	36	56	25	49	15	44	7
Huron, Dak	99.2	46	90.6	42.7	88	28.2	76.8	21.8	62.4	— 4.3	57	—20.5
Indianapolis, Ind	92	56.8	91	53	87	40.4	81	35	65	10	62	9
Indianola, Tex	95.1	73.7	96	72.4	90	61.2	89.8	51.8	82.2	42.2	78.1	35.7
Jacksonville, Fla	98	69.5	94.5	70.5	90.5	62.5	92	59	83	48	78	30.5
Keokuk, Iowa	95.5	56	90	55	86.5	39	84	32	68	12	62	2
Key West, Fla	94.2	72.7	94.7	74	92	71.5	91	71	85.5	67	81	57
Kitty Hawk, N. C	99.5	64	90.5	63.9	87.5	59	88	49.9	78.2	29	67.5	23
Knoxville, Tenn	96	58.2	94	53.2	92	47	83.9	40.3	76.2	14.1	63.0	19
La Crosse, Wis	95	52	89	52	79	35	80	27	59.2	3	53	—10
Lake View, Oreg	......	......	......	......	......	......	......	(¹)	(²)	(³)	(²)	15
Leavenworth, Kans	96.5	59	93	53	92	42	85	34	73	16	65	4
Lewiston, Idaho	98.1	50.5	98	45.5	93.5	34	65	29.3	63.2	25.2	54	6
Linkville, Oreg	......	......	......	......	......	......	......	......	......	......	......	(¹)
Little Egg Harbor, N. J	98	57.5	92	55	86	47.3	74.8	36	62.1	22	55.1	10.4
Little Rock, Ark	94	64	98	62	95	48	90	45	79	26	74	28
Los Angeles, Cal	90	52.5	98	50	103.5	53	83	43.5	84	42	80	37
Louisville, Ky	95	61	94	58	92	44	85.9	41	75	16.3	67.5	15
Lynchburg, Va	96.6	58.2	95	50	86.6	46	83	41.8	75.8	19	66	22.5
Mackinaw City, Mich	80.2	46.8	83.2	42.8	74.2	34	69.1	24	59.8	8.4	51.5	8.3
Macon, Fort, N. C	89.5	70.5	91	63	85	62	80	49.5	71	30.3	64.5	27
Maginnis, Fort, Mont	87	43	90	30	84	30	62	14	60	—16	58	—14
Maricopa, Ariz	......	......	......	......	......	......	......	(¹)	85	31	71	29
Marquette, Mich	94	40.3	88	34.7	82	28	66	24	56.8	1	53	—12
McDowell, Fort, Ariz	......	......	......	......	......	......	......	......	......	(¹)	75.7	28.7
Memphis, Tenn	97	64	94	61.5	92	51	68	44	77.3	20	72	21.5
Milwaukee, Wis	90	50	88	51	83	39	78	31	60.5	5	55.5	— 7
Mobile, Ala	101	71	99.4	68	94.5	57	91	46.3	80.5	33.4	74.0	28.5
Montgomery, Ala	98.6	60.2	96.6	65	96	53	95	43.3	82.3	29	72.5	26.9
Moorhead, Minn	91.5	43	87	39	87	17	64	15	55	—14	55	—34
Mount Washington, N. H	60.5	27	58.3	20.4	60	14.8	54.5	6	46	—17.2	37.2	—41
Narragansett Pier, R. I	87	56	85	45	77	39	75	29	62	17	56	— 9
Nashville, Tenn	93.6	61.1	92.3	54.7	90.2	50.6	85.7	44.6	75.2	16.5	70.4	20.5
Neah Bay, Wash	......	......	......	......	......	......	......	......	......	(¹)	(³)	29
New Haven, Conn	91	52	85	48	79	38	79	28	62.8	17.5	52.4	— 6
New London, Conn	89	53	84	49	78	41	70.2	27.2	63.2	17	56	— 7.5
New Orleans, La	94.1	74.5	92.5	73.9	90.5	63	88.7	49.8	81	36.8	76	37
New River Inlet, N. C	94	66	(³)	(³)	⁵93	⁵58	⁹88	⁹48	77.2	24	71.3	19.5
New York City	90.5	58	87	59	81	46.5	81	36	68	8	54	4
Norfolk, Va	98.2	64.5	94.5	61.6	85	55.3	86.6	47.1	79.2	27.5	68.0	24
North Platte, Nebr	95.3	54	92.3	48	91.3	36	83.3	29	67	12	59	— 5.5
Ocean City, Md	(³)	(³)	⁸85	⁸57	80.5	50	(³)	(³)	¹⁰62	¹⁰22	55	20.5
Olympia, Wash. T	90	41	78	46	77	38	64	33	57	29	56	24
Omaha, Nebr	99	55	91.1	52.1	88.9	41	81.2	25.8	65.3	7	58	— 8.6
Oswego, N. Y	92	52	97.5	52.3	81	40.2	83	31.8	70	19.8	58	— 6
Palestine, Tex	97.5	71	97	65	95.5	49	⁹94	⁹41	82.5	34.5	75	28.5
Pensacola, Fla	93.3	72.4	92.5	69.5	92.4	59.7	88.5	48.7	80	35.5	74.2	28.8
Philadelphia, Pa	94	56	90	57.5	82.5	44.8	81.5	37.5	72.8	25	57.3	10
Phoenix, Ariz	112	65	¹¹116	¹¹68	114	51	96.2	33.6	89.8	25.9	87.3	20.1
Pike's Peak, Colo	57	29	53	31	49	7	33	— 5	31	—13	28	—32
Pittsburg, Pa	96	53.5	94	51.5	93	39.4	85.5	33.5	73	15.3	64	15
Point Judith, R. I	84	52	82	49	76	41	68	30.2	60	18.2	58	— 8
Poplar River, Mont	......	......	(¹²)	(¹²)	⁴90	⁴28	(³)	(³)	60	—26	⁶41	—39⁶
Port Angeles, Wash	......	......	......	......	......	......	......	......	......	(¹)	(³)	18.5
Port Huron, Mich	87	48.9	89.5	48	83	35.5	79	30	64.5	8.5	55.5	1.3
Portland, Me	89	53	87	48.5	78.5	43	78	29	62	17	52	— 8.1
Portland, Oreg	94	48	80	43.5	87	44.6	64.2	37	60	33.5	56.4	24.2
Prescott, Ariz	94.8	53.5	93.5	52	95	36.5	75.5	23	78	18.5	59.8	19.5
Provincetown, Mass	93	52	90.5	53	77.5	45.5	73	34.1	62	22.8	50	— 0.4
Pyramid Harbor, Alaska	71	43	74	40	69	32	......	......	......	......	42	4
Pysht, Wash	......	......	......	......	......	......	......	......	......	(¹)	(³)	23
Red Bluff, Cal	107	58	101	56	103	53	79	40	75	30	71	25
Reno, Fort, Ind. T	98	57	98	57	98	40	88	28	83	17	74	18
Rio Grande City, Tex	104	63	105	68	104	58	99.6	50.3	92.7	44.1	83.6	35
Rochester, N. Y	......	......	......	......	(¹⁷)	......	79	27	69	16.5	55.5	— 4.5
Roseburg, Oreg	93	46.4	86.4	45.2	86.2	39.4	65.2	32	58.8	27.4	57.3	28.5
Sacramento, Cal	103.5	56	100	54.8	101	52.9	81	42.2	71	29	67	24
Saint Louis, Mo	96.5	59	97	58.2	92	43.3	86	34.6	72.2	17.5	71.5	8.5
St. Michael's, Ft., Alaska	65.5	36	68.6	37	66.5	30	45.1	12	35.5	—17	39.5	—26

[1] Station opened.
[2] No record.
[3] Record incomplete.
[4] 23 days only.
[5] 27 days only.
[6] 20 days only.
[7] 22 days only.
[8] 25 days only.
[9] 24 days only.
[10] 17 days only.
[11] 16 days only.

(*in degrees Fahrenheit*) *at stations of the Signal Service, &c.*—Continued.

1884.												Annual range.
January.		February.		March.		April.		May.		June.		
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
°	°	°	°	°	°	°	°	°	°	°	°	°
51.2	—13	52	—20	51	— 9	63	26	76	31.5	86	43.5	110.0
47	9	47	4	50	15	62	22	60	32	68	39	75.0
44.3	—38	44.3	—31.5	65.2	—14.6	72	21.7	83	30.3	93.9	42.9	137.2
56.8	—25	65.2	— 1.6	69.5	5	80.5	31.4	84	40.6	92.8	54.7	117.8
78.7	18	79	28	78.5	33.2	87.4	44.1	88.2	56	93	67.9	78.0
72.2	21	79	36.8	85.2	42.4	88.5	47.2	90.7	62.3	91.6	61.7	77.0
52.5	—24.2	51.8	2	66.5	2.5	80.4	28.2	80.2	40	91	51	119.7
81	51	83	60.2	85.9	58	88.8	65.8	90.7	70.8	91.9	72.5	43.7
65	8.6	71.1	21.1	71	21.5	73	38	89	42.5	91	52	90.9
59	—16	74.3	7.5	75.7	14	86	30.7	89	45.8	92.1	53.1	112.0
45	—29	43	—10	66	—10	75	27.5	79.3	38	88	51.4	124.0
[4]39	[4]— 1	48.5	—22	[5]50	[5]15	63	19.5	(3)	(3)	81.5	33	....
57	—21	57	— 1	70	11	75.8	29	84	39	90.8	52	117.5
54	10.8	55.2	—17.8	62.2	28.8	77	34.8	92	39	95.6	48.7	115.9
[6]45	(3)	52	27	[7]58	[7]15	69	10	[4]80	[4]24	86	35	....
[6]51.4	[8]8.4	53.1	13.5	60.2	10.8	65.6	30.5	90.3	41.4	86.1	46	89.6
72	5.6	76	17	78	28	85	85.7	87.3	53.5	95	62.3	92.5
78	83.7	81	38.5	72.5	87	80	41.5	79	47	98	49.5	69.8
62.5	—19.5	70	8.8	75	13.5	83.1	87.1	89	46	95.2	58.3	114.7
52	1.8	69	11.2	72	16	83.2	33.3	90.6	45	91.5	50.5	94.8
39.8	—15.9	39	—16.6	52.2	—20.2	66.1	19.1	73	33	81.4	43.5	103.4
60.5	3.5	66.2	24.3	70.7	25.6	74.3	40.7	79.2	53.4	83.4	55.1	82.5
48.1	—20.3	51.1	—28.2	53.1	—14.1	65.8	16.9	78.4	29.6	87.6	43.4	118.2
70	30	81	26	74	35	93	39	104	49	114	55	....
44.5	—19	38.8	—20	56	—16	69	17.9	72.5	31.2	91	37.4	114.0
76	22.5	85.3	23.7	79.8	36.5	92.6	37.5	102.2	43.5	113	50	....
71	— 2	72.7	18.5	75	26.8	83	40.5	86.8	54	96	59	99.0
45.1	—24.3	45	—13.3	58.1	— 8.5	78.8	27.8	79.4	35.1	84.5	44.3	114.3
67	13.9	75.5	28.9	83.9	37	85.9	43	92.7	58.7	96	61.7	87.1
70.5	8	80.9	22	82.8	32	85.3	42.6	93.1	59.4	94.1	50.8	90.6
43	—43	37	—30	53	—23	67.5	17	85.5	28.5	91	39	134.5
36	—29	39	—30.2	41.6	—26	45.2	1.8	55	12.5	67	26.5	108.0
48	2	50	4	60	4	62	26	75	33	91	41	100.0
65.4	—10.2	71.9	9.8	76.2	19.4	81.5	34.1	87.6	48.4	92.2	58.3	....
59	35	56	25	60	32	68	34	70	37	68	41	103.8
50.4	4.2	52.8	0.7	58.2	0.8	66.1	29.2	85	32	92	41.4	98.0
51.5	6	51.5	3	60	4	67	29	83	34.7	87.5	43	96.5
72	22.5	77.1	32.7	80.5	40.9	82	50	86.2	61.7	90.9	68.5	71.6
66.5	4	71	23	[9]75	[9]23.1	[7]88.9	[7]30	[8]86.1	[8]46.1	88.2	46.2	....
47	7.8	61	2	63	5	73.5	32.1	84.7	42.4	92	49.1	90.0
67	10.2	72	22.8	75	23.3	78.5	40.9	91.1	47.8	92.5	53	88.0
48.8	— 9	59	—20	65	— 1	70.5	25	88	32	94	49	115.3
51.5	4	55	14.8	[5]60.2	[5]13.8	[5]72.9	[5]27.2	85.7	42.4	[9]84.2	(2)	....
54	28	59.1	2	64	25	76	35	87	36	87	40	88.0
47.2	—32	55	—12.1	67.3	— 2.6	75	25.3	82.5	36	93.4	52.8	131.0
45.8	— 3.6	51.5	6.8	56	7.5	78	29.2	83	37	90.2	49.3	103.5
76.5	6.5	77.5	17.6	80	31.8	82.3	38.4	84.9	52.6	92	60.4	91.0
71.3	16.3	74.3	29	82.7	87.5	83	44.7	86.9	60.3	91.6	64.1	77.0
55	10	65	10.5	66	12	74	33	88	41.5	94.8	47.2	84.8
79.2	20.1	87.5	19.1	70.3	30.1	96.5	33.1	104.5	36.3	114.1	48.5	96.9
22	—33	20	—30	17	—20	23	— 7	40.5	— 3.1	43.5	19	90.0
52.8	— 6	70	— 3.2	71.3	0.5	78.2	29.5	91.5	39	95	50.3	102.0
50	3	47	5	58.2	5.7	59	21.2	70	33.8	77	42	92.0
45	[4]48.3	41.3	—48.3	[12]46.5	[13]1.6	73.4	9.2	83.5	24.6	99.1	45	.....
48.4	26.3	51.3	3	53.5	19.5	65	31	72.8	36.4	75.2	38.2	....
[4]45	—11.3	56.9	—15.3	59.8	— 5.9	69	26.5	80.4	32	87	46.5	104.8
47.8	— 3	49	7.7	58.7	2.9	68	29.3	82.7	39.2	89.4	44.3	97.5
48	25	64.7	7.2	66.7	28.2	79.6	39.6	90	40.4	89	47	86.8
59.2	13	67.2	10	63	20	71.2	18.3	82.5	30.2	92.5	37	85.0
62	9.4	48.8	0.3	57	6.4	(14)	(14)	....	....	....	....	....
48	Zero.	46	— 4	49	12	61	20	61	[15]36	78	(16)	....
52.5	25	57.5	9	55.5	18.5	69	31	76	35	71	37	....
67	30	79	22	71.5	32.5	77	41.5	91	50.5	94.5	52	85.0
72	— 4	73	— 2	79	17	85	31	90	37	96	55.4	102.0
85	21	92	33.2	98.2	32	[5]101.6	[5]45	100.6	58	106.2	68	85.2
47	—10.5	53.5	— 6	56.8	— 2	75.5	27.8	82.6	33.3	86.1	46.6	.....
63.3	25	68	3.3	67.3	28.2	78	35.2	88.2	35	84.3	42.7	89.7
61	31	71	21	70.5	39	74.2	40	85	50.5	92	52.9	82.5
67	—21.5	63.5	7.1	69	10	83.3	34.1	86	44	95	52.5	118.5
39	—38	37	—26	43.5	—10	41.5	—10	52	11	60.5	31	104.5

[12] Thermometric observations began Aug. 16, 1883.
[13] 19 days only.
[14] Observations discontinued April 1, 1884.
[15] 18 days only.
[16] No record.
[17] Station reopened October 10, 1883.

Maximum and minimum temperatures and annual range of temperature

Stations.	1883.											
	July.		August.		September.		October.		November.		December.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°	°	°
Saint Paul, Minn	100	52	88	46.5	84	30.5	75	25	60	0.5	53	—15.8
Saint Vincent, Minn	93	40	82	39	89	17	69	11	57	—22	42	—40
Salt Lake City, Utah	96	55	94	51.5	89	46.5	66	27.6	64.2	17.8	53	5.4
San Carlos Ag'cy, Wash.	107	54	106	60	108	49	86	30	79	23	69	27
San Diego, Cal	80	59	84	59.9	101	59	80.5	47.8	82.2	43	78.2	42
Sandusky, Ohio	(1)	(1)	91.8	55.3	83.5	45	85	38	69.5	15.2	37	14
Sandy Hook, N. J	95	59	91	61	83	49	77	39	67	22	57	5.5
Sanford, Fla	99.4	70	96.9	69	91	66.5	91.8	62	82.3	50.5	80.5	36
San Francisco, Cal	80	50.5	82	52	91	53	74.5	48	67	43.5	62	39.5
Savannah, Ga	99.5	72	95	65.5	90	61	91.5	53.2	81	30	74.7	28
Scott's Hill, N. C	100[2]	[2]63	96	60	[3]91	[3]53	90	47.8	81.1	24	70.5	21.5
Shaw, Fort, Mont	94	38	90	33	83	27	60	5	60	—21	59	— 9
Shreveport, La	102	71	102	63.8	99	48.8	95	42	88	31	75.6	29
Sitka, Alaska	67.5	43.7	64	42.5	69.4	40	59.8	26	52.8	5	52.8	11.
Smithville, N. C	92	70.5	92	58	86	57.5	84.2	48.4	74.1	30	68	24.
Spokane Falls, Wash. T	96.7	46	96.3	39	84	35	70.4	24	57.6	19.8	47	3.5
Spokane, Fort, Wash. T	......	......	......	......	......	(5)	77	21	61	12	52	2
Springfield, Ill	95	54	90	54.9	88	39.4	82.8	34.4	67.5	12.5	64	4.1
Stanton, Fort, N. Mex	......	......	......	......	......	......	......	......	......	......	......	(5)
Stockton, Fort, Tex	103	60	98	54	93	40	87	34	87	24	80	16
Sully, Fort, Dak	(6)	51	(6)	50	99	28	81	22	70	3	(6)	—18
Tatoosh Island, Wash. T	......	......	......	......	......	(7)	63.5	38	52.2	32.4	54.2	25.8
Thatcher's Island, Mass	84.5	52	80.2	45.5	72	39.5	59	35.8	59	18.5	54.4	—5
Thomas, Camp, Ariz	103	61.9	101	61.9	100	45.9	89.5	30	77	21.8	71	19.8
Toledo, Ohio	93	50	91	52	82	37	83	34	68	13	58.2	10.2
Unalashka, Alaska	72	40	69	38	60	33	61	30	54	19	45	14
Verde, Fort, Ariz	103	60	101	63	103	46	86	30	75.5	22	66	24.5
Vicksburg, Miss	96.5	67.6	96	65	95.2	54.3	93.4	43.6	82.4	28.3	77	29.8
Washington City	97.1	61.9	93.6	55.4	87	43.6	84	36.2	72	20.8	60.1	15.1
Wash Woods, N. C	[4]99.8	[4]66	[2]90.8	[2]62	[8]88.8	[8]60	(9)	(9)	[10]82.8	[10]30	(9)	(9)
West Las Animas, Colo	104	55.5	99.5	52	97.5	35	86.5	19	77	8	68	—2.5
Wickenburg, Ariz	[12]106.5	[12]54	108	63	(6)	(6)	86.5	32	83.5	26	74	28
Willcox, Ariz	......	......	......	......	......	......	......	(5)	81.0	11	80	10
Wilmington, N. C	97	68.5	96.5	62	90.1	59	90	48	82	28	71.8	27
Yankton, Dak	103	52	92	48	89.1	36.6	81.2	21.1	66.8	2.6	59.5	—12.9
Yates, Fort, Dak	98	49	(6)	(6)	94	34	80	19	60	—15	62	—31
Yuma, Ariz	110.9	74.5	110.7	74.3	110.8	63.4	90.5	41.4	87.5	37.1	(6)	(6)

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[1] Station reopened July 20, 1883.
[2] 27 days only.
[3] 24 days only.
[4] 26 days only.
[5] Station opened.
[6] No record.
[7] Observations began October 1, 1883.

(*in degrees Fahrenheit*) *at stations of the Signal Service, &c.*—Continued.

1884.												
January.		February.		March.		April.		May.		June.		Annual range.
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
°	°	°	°	°	°	°	°	°	°	°	°	°
45	−31.5	45	−18	59.5	−12	71.5	21.9	81	34	90	47.5	131.5
36.3	−41	30	−37	38.2	−27	67.5	18	85.1	29.3	90.1	39	134.0
52.4	1.6	58.3	−13	57.8	23.8	70.2	34.8	83.7	35.7	91.8	47.7	109.0
64	17	79	24	74	33	86	34	99	38	110	49	93.0
77.5	38.7	79	37.8	67.9	48	68.8	44.8	72.3	47	81	50	63.2
52	−10.7	62	−2.8	64.5	6	72.9	30.1	86.9	42	88	53.2	....
50	8	62.5	6	63.6	6.9	67	34	86	45	91.2	51.8	89.5
81.5	28.5	83.5	40.4	88.5	43	91.5	49	94.7	63.2	94.8	62.6	70.9
58.5	48	71	35	68.5	45	68.5	45	80	49	71	52.5	56.0
68.5	18.5	76.5	26	83.5	34	86.7	45	90.5	58	[8]91	[8]58.5	81.0
69	4.9	77.5	24.5	80.8	20	[8]85.5	[8]32	84.5	49	84.9	47	95.1
51	−15	53	−32	55.8	−22.5	70.8	20.8	81	26.8	91.5	45	126.0
75	10.5	78.2	19.1	82	33.2	86.3	40.8	90.6	55.7	99	63	91.5
49.8	19	52.5	11	48.4	23.3	60.1	27.5	59.4	36.2	74.6	39	69.6
63.5	6	69	25.5	75	27.4	85.6	38.5	88.2	52.6	86	50.6	86.0
[4]50.9	[4]1.2	48.8	−17.8	58.2	12	73	31.5	88.8	37.8	93.8	42.8	114.5
51	8	47	−32	62	6	74	19	[8]89	[8]25	93	35	....
62.5	−22.3	55.1	5.6	66.5	7	80	32.2	78.1	41	90.8	50.9	117.3
65	−2	67.9	4	68.3	15	73	18.3	79.6	29.9	....	....	....
78.5	8.7	82	23	89.5	27	90.4	29.4	95.4	42	101.1	55.8	94.3
(6)	−33	(6)	−25	(6)	−19	(6)	20	(6)	31	(6)	46.0	....
55.7	32.9	52.1	20.6	52	25.3	61.2	40	63.8	42.7	64.2	46	....
47.5	3	48.3	3.5	54.2	4.5	61	33	69.2	37.5	87.7	41.5	92.7
64	10	74.2	18.8	78.5	26.8	84.5	31.8	95	36.9	105	47.4	95.0
53.8	−14	59.3	−0.5	63.5	3	70.6	29	82	36.5	91.5	52.5	107.0
49	16	43	24	59	16	59	15	52	31	68	36.5	58.0
63	15.5	71.5	15	68.5	27.5	85	30	98.5	38	106.5	42	91.5
73	10.3	79.5	23	79.6	35	84.8	44	87.8	57.3	97.2	62.2	86.9
52	1.7	70.2	9.2	67	13.1	82.1	32.1	91.8	42.1	95.7	49.9	95.4
[10]62.8	[10]7	[11]71.8	[11]20	[12]72	[12]21	[13]79	[13]39	(9)	(9)	(9)	(9)	....
68.2	−10.5	71.2	−22.7	79.3	9.2	79.2	22	90.4	27.5	97.7	47.5	126.7
73	21.5	80	21	72	30	87.5	33.5	97	40	111	45.5	....
80	2	89	6	76	12	84	18	98	15	108.2	34	....
71.4	9	75.4	28.8	77.7	29.7	84.2	41.3	88.6	51.2	89.7	51	88.0
49.6	−28	51.8	−23.1	65.8	−10.9	72.1	27.1	82.5	34.1	98.8	47.8	131.0
45	−45.5	46	−39	54.5	−14	70	17	82	35	95.5	40	....
71.7	36.6	84.2	34.1	81.3	42.6	95	45.1	104.2	48.9	118.2	58.4	....

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[8] 19 days only.
[9] Record incomplete.
[10] 21 days only.
[11] 16 days only.
[12] 23 days only.
[13] 17 days only.

APPENDIX 37.

Table showing the highest and lowest temperatures (in degrees Fahrenheit) recorded at stations commencement of observations to

[From self-registering

Stations.	Established.	January.		February.		March.		April.		May.	
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
		°	°	°	°	°	°	°	°	°	°
Albany, N. Y	Dec. 22, 1873	59	—18	58	—18	64	— 4	80	13	92	29
Alexander, Ft., Alaska	Aug. 1, 1881	40	—18	37	—26	41	— 6	48	8	61	23
Alpena, Mich	Sept. 10, 1872	52	—27	58	—27	66	—14	76	— 2	91	22
Apache, Fort, Ariz	Oct. 9, 1877	67	— 6	74	— 9	83	11	89	15	93	29
Assinaboine, Fort, Mont	Oct. 6, 1879	46	—43	56	—47	67	—13	81	7	79	20
Atka, Alaska	May —, 1879	43	20	45	19	45	15	50	22	52	24
Atlanta, Ga	Sept. 25, 1878	73	9	74.5	21	81	27	86	25	91	30.5
Atlantic City, N. J	Dec. 10, 1873	64	— 3	71	— 5	72	10	79	19	89	33
Augusta, Ga	Nov. 2, 1870	79	15	82	22	89.3	22	90	31	100	42
Baltimore, Md	Jan. 1, 1871	71	— 6	78	2	76	5	84	23.5	95	34
Barnegat City, N. J	Dec. 10, 1873	61	—10	70	— 4	73	10	79	19	91	34
Behring's Isl'd, Be'g Sea	May 22, 1882	*33	7.3	*38	11.8	*33.9	13.6	*38	10.9	*43.6	28.2
Bennett, Fort, Dak	Dec. 22, 1879	55	—42	63	—34	78	—11	86	4	92	30
Benton, Fort, Mont	Oct. 11, 1879	58	—55	62	—41	74	—42	81	— 6	93	26
Bismarck, Dak	Sept. 15, 1874	49	—37	60	—31	72	—25	80	1	92	21
Block Island, R. I	Sept. 1, 1880	56	— 4	51.5	2	54	10	62	25	78.3	36
Boise City, Idaho	July 1, 1877	57	—27	64	—12	76	9	80	17.5	88	29
Boston, Mass	Nov. 1, 1870	69.5	—13	64	— 6.5	72	— 7.5	85	11	97	31
Brownsville, Tex	Aug. 25, 1875	83	18	85	27	92	35	97	43	99	49
Buffalo, N. Y	Nov. 1, 1870	65.5	— 6	63.8	—13	72	2	82.6	11	87	29
Buford, Ft., Dak	Oct. 23, 1878	47	—46	57	—40	70	—23	92	7	95	22
Cairo, Ill	June 1, 1871	70	—11	74	4	84	10	89	24	92	37
Cape Henry, Va	Dec. 15, 1873	78	9	80	11	83	12	85	28	93	41
Cape May, N. J	May 24, 1871	58	1	59	2	65	9	76	24	81	34
Cape Mendocino, Cal	July 27, 1882	61.5	31	64.5	30.5	69	38	57	36	74	38
Cedar Keys, Fla	Nov. 7, 1879	77	32	79	35	82	40	88	38	91	50
Charleston, S. C	Jan. 5, 1871	80	23	78	26	85	28	87	32	94	47
Charlotte, N. C	Oct. 6, 1878	70	11	76.5	22	79	26	85	28	94.4	40.5
Chattanooga, Tenn	Jan. 8, 1879	73	13	74	16	82.5	28	88	25	93	41
Cheyenne, Wyo	Nov. 1, 1870	63	—38	59	—28	77	—17	80	2	88	23
Chicago, Ill	Nov. 1, 1870	65	—20	63	—13	73	—12	83	17	89	27
Chincoteague, Va	Mar. 16, 1880	60	8	71	5	72.2	17	79	26	88	40
Cincinnati, Ohio	Nov. 1, 1870	69	—10	73	— 1	77	1	85	18	94	35
Cleveland, Ohio	Nov. 1, 1870	70	—17	72	—11.2	76	— 2	85	15	92	28.3
Columbus, Ohio	July 1, 1878	64	—20	72	— 2	71	14	86	15	92	34
Concho, Fort, Tex	Oct. 10, 1875	78	— 1	87	6	97	16	98	29	107	46
Custer, Fort, Mont	Dec. 5, 1878	60	—31	65	—38	76	—23	85	12	84	22
Davenport, Iowa	May 24, 1871	60	—23	66.7	—16	74	— 6	81	16	90	29
Davis, Fort, Tex	Dec. 24, 1877	77	Zero.	79	9	87	17	95	25	101	40
Dayton, Wash T	July 1, 1879	61	—23.5	64	—24	83	8	91	21	90	30
Deadwood, Dak	Nov. 1, 1878	62	—30	62	—32	73	— 5	82	11	84	21
Del. Breakwater, Del	Jan. 28, 1880	56	10	66	7	73	19	79	25	89	40
Denver, Colo	Nov. 19, 1871	67	—29	72	—22	81	—10	83	4	92	27
Des Moines, Iowa	Aug. 1, 1878	63	—26	68	—23	80	— 3	80	11	93	33
Detroit, Mich	Nov. 1, 1870	65	—15	60	—20	75	— 7	78.5	8	90.5	29
Dodge City, Kans	Sept. 15, 1874	70	—20	78	—20	89	— 8	92	13	98	34
Dubuque, Iowa	July 10, 1873	62	—26.2	67.2	—31	75	—10	84	14	94	27
Duluth, Minn	Nov. 1, 1870	51	—38	57	—34	62	—26	75	3	91	26
Eastport, Me	Apr. 1, 1873	51	—20	47	—20	53	— 4	63	2	80	29
Elliott, Fort, Tex	Nov. 29, 1879	81	—12	78	—10	86	— 2	96	20	94	38
El Paso, Tex	Nov. 5, 1877	74	5	82	12	88	21	98	29	101	41
Erie, Pa	May 25, 1873	73	—15	70	—16	78	2	86	11	91	32
Escanaba, Mich	May 24, 1871	45	—26	52	—32	57	—20	65	2	83	20
Fort Smith, Ark	June 1, 1882	68.5	2.5	78.4	8	82.5	28	88.5	37.2	93.3	45
Galveston, Tex	Apr. 19, 1871	75	20	75	30	85	34	85	44	91	54
Grand Haven, Mich	May 24, 1871	57	—12	58	—24	71	Zero.	80	9	86	28
Grand, Fort, Ariz	Nov. 1, 1875	77	10	80	17	87	21	93	29	94	37
Hatteras, N. C	Dec. 1, 1880	64	22	69	20	69	32	75	31	88	47
Helena, Mont	Oct. 15, 1879	50	—34	60	—32	66	— 2	73	6	77	25
Hoochnahoo, Alaska	July —, 1881	42	3	45	Zero.	51	Zero.	63	23	76	29
Huron, Dak	July 1, 1881	45.5	—30.3	57.2	—31.8	74.8	— 7.8	81.2	19.2	78.8	28
Indianapolis, Ind	Feb. 10, 1871	69	—22	72	— 8	77	9	85.3	19	89	31
Indianola, Tex	May 1, 1872	80	15	80	21.5	90	32	91	32	95	51
Jacksonville, Fla	Sept. 11, 1871	80	24	83	32	88	31	91	37	98.5	48
Keokuk, Iowa	July 16, 1871	64	—20	69	—11	80	— 2	85	20	92	29
Key West, Fla	Nov. 1, 1870	90	48	87	55	89	58	91	61	93.2	63

* From exposed thermometer.

APPENDIX 37.

of the Signal Service, United States Army, for each month of the year (compiled from the and including December, 1883).

thermometers.]

June.		July.		August.		September.		October.		November.		December.	
Max.	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**	**Max.**	**Min.**
°	°	°	°	°	°	°	°	°	°	°	°	°	°
92	40	94	48	93	45	96	33	84	23	70	—10	63	—17
78	35	......	......	......	......	......	......	......	......	......	......	......	......
97	33.5	97	45	92	40	92	29.3	83	22	63	—4	56	—15
101	36	102.5	41	98	41	96	32	83	19	77	9	70	—2
101	31	95	35	98	37	86	28	76	—16	62	—25	56	—42
72	30	72	35	68	39	62	35	54	28	57	22	45	12
94.8	54	97.5	57.8	96.2	57	90.5	44	86	35	80.5	20	71	1
93	45	99	53	91.8	53	94	43	83	29	72	10	64	—7
101.8	57	105	62	105	61	97	48	92	29	84	24	77	7
97.5	49	99	59	98	52	101	40	89	30	78	15	71	—3
95.6	47	96	53	95	53	96	41	82.5	28	73	11	63	—7
60.7	31.3	55	36.1	63.6	39.5	58.5	31.3	49.1	19.2	42.9	13.5	40.7	1.4
98	33	101	46	104	42	95	27	90	10	65	—18	62	—21
101	27	107	37	108	34	95	14	87	—6	70	—31	67	—59
99	32	102	43	105	39	94	10	88	6	67	—28	60	—38
81.5	47	86	55	82	55	86.5	41.5	75.4	35	70	19	59.5	—1
98	36	106	40	105	39	96	30	85	19	70	7	59	—4
96	44	101	46	96.8	47	101.5	34	90	25	75	—2	66	—12
102	63	98	68	101	69	96	57	95	49	89	30	83	18
92	40.5	90	47.5	90.8	44	86.8	35	83	25	68.3	2.5	62	—9
107	30	104	40	107	36	100	18	95	9	62	—20	51	—46
96	50	99	60	108	57	97	42	88	24	80.5	7	72	—7
98	52	101	60	103	60	94	53	89	39	81	24	76	7
89	47	91	56	88	55	87	42	81	31	69	14	62	2
83	43	69	45	69	46	90	45	75	42	73	38	71	40
94	65	94	69	96	69	94	64	89	49	81	33	78	22
100	60	104	67	97.5	62	94	54	93	39	82	28	76	13
97	52	101	60	100.5	56	94	43	87	30	80	18	70	—5
95	51	101	57.5	100.5	57	96	47	86	35	78	17	72	3
97	28	100.5	37.6	96	34	88	23	80	—4	69	—20	64	—24
98	40	99	50	98	51.4	93.9	37	84	25	72	—2	68	—23
93	50.3	94	59	91	60	86	46	83	40	79	18	64	1
98.5	49	103.5	58.2	101	55	95	41	86	27	75	5	72	—8
96	40	96	49.6	98.7	45.6	98	38	87	26	72.5	Zero.	68	—12
98	48	103	54	98	50	98	37	86	25	74	—5	63	—12
110	49	108	60	103.4	54	100	45	97	32	85	12	80	6
107	39	103	41	103	36	95	29	87	10	69	—24	61	—42
93	43	98	52	96.1	48	94	36	85	18	71	—3	63	—17
111	49	110	53	97	47	94	37	90	30	81.6	6	80	1
97	35.5	102	37.4	101	36	91.3	29	92	19	66	5	59.8	—17
93	33	102	42	101	40	91	29	77	5	68	—16	58.7	—25
89	50	91	59	93	60	93	51	84	38	73	23	69	1
99	37	102.8	42	105	44	93	28	86	1	76	—18	71	—25
95.5	44	98.5	52	103	48	93	34	85	15	71	Zero.	57	—17
93	38	100	50	98.8	45	97	29.8	85	22	69	Zero.	65	—24
102	40	108	50	101.6	50	99.3	30	90	10	83	—7	73	—15
98	40	101	50.4	97.3	41	94.2	33	86	20	69	—9	64	—19
92.2	36	99	46	93	45	90	30	78	8	65	—29	51	—34
81	30	86	45	88	45	81	35	80	24	64	—13	54	—20
100	44	102	49	101	48	98	37	88	26	81	—5	83	—10
113	50	110	56	105	52	104	42	94	28	82	11	74.8	—5
91	42	94	52	93	50	92	40	85	28	73	6	68	—11
88	34	92	42	89	38	84	26	75	17	61	—9	48	—23
101	50	100	61	101.3	60	99.4	39.6	94	39.3	86	22	78.1	9.5
97	64	97	69	98.5	70	94	59	87	45	82	29	75	18
88	40	90	40	92	42.5	85	30	80	26	69	Zero.	61	—4
101.5	51	100	56	103	55	98	47	91	33	79	20	74	18
91	60	92	63	92	64	90	60	90	48	79	32	68	8
95	31	98	38	95	34	86	30	75	10	60	—17	52	—40
76	35	79	40	74	40	64	30	56	25	49	15	44	1
94.1	34	99.2	46	95.6	42.7	93.2	28.2	80.9	21	64.9	—6	58	—20.5
96	45	101	53	101	48	94.5	35	86	23	75	—5	68	—15
98	60	98	68	100	67	96	60	93	46	87.8	22	79	14
100.5	62	104	68	100	66	98	56	92	40	84	30	81	19
96	45	100	56	102	47	97	39	87	20	74	—8	68	—22
95.5	71.2	97	72.7	95.4	72	95	71.5	92	65	91	53	88	44

Table showing the highest and lowest temperatures recorded at

Stations.	Established.	January.		February.		March.		April.		May.	
		Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
		°	°	°	°	°	°	°	°	°	°
Kitty Hawk, N. C	Jan. 15, 1875	78	11	77	11	80	20	84	29	93	42
Knoxville, Tenn	Jan. 1, 1871	74	—14	79	6	83	6	88	24	94	37
La Crosse, Wis	Oct. 15, 1872	59	—43	65	—34	72	—23	83	10	96	29
Leavenworth, Kans	May 21, 1871	65	—29	73	—12	84	2	89	13	94	31
Lewiston, Idaho	July 1, 1879	59	—14.2	63	—13.5	78.5	12	86	30	88	35
Little Rock, Ark	July 1, 1879	78	12	77	22	83	32	94	29	91	44
Los Angeles, Cal	July 1, 1877	82	30	86	28	99	35.3	94	39	100	39.5
Louisville, Ky	Sept. 11, 1871	71	—10	77.5	Zero.	79	3	88.5	21	93	36
Lynchburg, Va	May 24, 1871	72	— 4	75	3	79	17	91.5	25	94	37
Mackinaw City, Mich	Aug. 20, 1882	37	— 9	43	—11	50	— 9	61	3	79.5	28
Macon, Fort, N. C	May 23, 1878	63	22	70	20	69	30.3	73	30	91	48
Maginnis, Fort, Mont	July 14, 1882	45	—29	57	—35	58	— 1	64	14	68	19
Marquette, Mich	May 1, 1871	56	—26	69	—27	70	—14	81	3	92	22
Memphis, Tenn	Feb. 28, 1871	73	2	79	13	85	18	88	27	96	41
Milwaukee, Wis	Nov. 1, 1870	59	—25	60	—22	70	— 3	82	12	90	25
Mobile, Ala	Nov. 7, 1870	78	15	78	28	85	31	90	32	98	47.3
Montgomery, Ala	Nov. 9, 1870	78.5	14	81.2	22	86.3	25	90	30	98	44
Moorhead, Minn	Jan. 1, 1881	37	—42	49	—33	50	—22	74	—13	88	26
Mt. Washington, N. H	Dec. 1, 1870	42	—46	43	—42	47	—49	50	—18	62	— 1
Nashville, Tenn	Nov. 1, 1870	74	— 8	77.4	9	81.7	11	90	25.5	93	37
New Haven, Conn	Dec. 10, 1872	63	—14	65	— 4	69	3	75	16	89	30.5
New London, Conn	Jan. 10, 1871	66	—10	62	— 6	64	6	74	19	89	32
New Orleans, La	Nov. 1, 1870	78	20	80	32.5	84	36.5	86	38	92	56
New York City	Nov. 1, 1870	64	— 6	69	— 4	72	3	81	20	94	34
Norfolk, Va	Jan. 1, 1871	80	8	81	9	81	16	92	27	98	38
North Platte, Nebr	Sept. 18, 1874	70	—27	68.3	—29	86	—21	92	12	94	30
Olympia, Wash. T	July 1, 1877	53	9	58	8	71	23	82	28	87	30
Omaha, Nebr	Nov. 1, 1870	62	—22.1	66	—24.9	82	— 7	89	6	92	28
Oswego, N. Y	Nov. 1, 1870	64	—13	61	—10	67	—11	78	13	94	31
Palestine, Tex	Dec. 3, 1881	75.5	7	78	13.5	84	34	87.5	43.5	90	50
Pensacola, Fla	Oct. 27, 1879	73.6	29	78.3	31	79.2	36	87.2	34	93	46.6
Philadelphia, Pa	Jan. 1, 1871	67	— 5	75	— 1	75	5	87	17.5	96	36
Pike's Peak, Colo	Nov. 1, 1873	30	—37	29	—37	43	—29	39	—21	47	— 8
Pittsburg, Pa	Nov. 1, 1870	75	—12	76.5	—10	80	2	88	14	95	27
Port Huron, Mich	July 25, 1874	64	—14.7	59	—20	73	— 8	81.4	7	88	26.2
Portland, Me	Jan. 15, 1871	58	—11.5	58	— 7	65	— 7	78	14	94	34
Portland, Oreg	Nov. 1, 1871	58	3	63	7	76.5	25.5	85	28	86	33
Prescott, Ariz	Nov. 19, 1873	71	—17	80	—11	90	— 8	86	13	90	26
Provincetown, Mass	Feb. 15, 1882	46.5	3.5	44.5	13.5	55	7	64	23	74.5	34
Pyramid Hb'r, Alaska	Oct. —, 1881	43	—13	48	—13	50	—13	68	14	70	30
Red Bluff, Cal	July 1, 1877	71.5	19	80	23	85	28	90	34.9	101.4	37
Rio Grande City, Tex	May 28, 1875	90	19	92	32	98	33	109	43	112	49
Rochester, N. Y	Nov. 1, 1870	69	—12	63	—12	69	— 7	83.5	11	90	28
Roseburg, Oreg	July 15, 1877	65	12	68.5	9.4	80	19	84.5	29	86.5	33
Sacramento, Cal	July 1, 1877	64	22	73.5	22	80	29	84	39.8	98	39
Saint Louis, Mo	Nov. 1, 1870	72	—16	73.2	— 3	82	8	87.5	22	93	32
St. Michael's, Ft. Alaska	June 28, 1874	43.6	—47	41	—52	41	—39	44	—27	57	— 2
Saint Paul, Minn	Nov. 1, 1870	49	—31	59	—32	68	—22.5	82	7	94	24
Saint Vincent, Minn	Sept. 5, 1880	35	—44	42	—38	49	—31	73	—14	85	21
Salt Lake City, Utah	Mar. 22, 1874	54	—20	68	Zero.	77	4	83	19	91	32
San Diego, Cal	Nov. 1, 1871	78	32	82.6	35	99	38	87	39	94	45.4
Sandusky, Ohio	Aug. 2, 1877	64	—16.5	70	Zero.	70	10	80	14	92	34
Sandy Hook, N. J	Dec. 10, 1873	63	— 3	71	Zero.	67	10	77	12	93	33
Sanford, Fla	Sept. 1, 1882	86	46	86	50	86	48	90.3	53.4	98	51
San Francisco, Cal	Mar. 8, 1871	69	36	70.5	35	77	39	81	40	86	45
Savannah, Ga	Jan. 1, 1871	80	18	80	29	87	27	89	33	98	48
Shaw, Fort, Mont	April 1, 1880	50	—33	58	—37	71	—18	80	— 4	84	21
Shreveport, La	Sept. 3, 1871	78	6	80.5	22	90	26	93	32	101	47
Sill, Fort, Ind. T	June 23, 1875	75	— 9	79	— 3.5	95	10	96	26	97	42.5
Sitka, Alaska	Mar. 30, 1881	50.8	8.5	49.8	4	55.8	5.5	65.7	25.5	69.2	31
Smithville, N. C	Oct. 15, 1875	73	16	72	18	74	21	81	29	90	41
Spokane Falls, Wash T	Feb. 5, 1881	47.2	—27.7	52	—25.1	74	7	72	26	84	29
Springfield, Ill	July 1, 1879	64	—10	72	— 2.4	73	13.5	85	19	88	33.9
Stockton, Fort, Tex	Feb. 26, 1876	82	2	83	8	92	15	101	24.2	104	41.5
Thatcher's Island, Mass	Dec. 26, 1875	60	— 8	60	— 4	66	6.5	76	18	86	31
Thomas, Camp, Ariz	Sept. 22, 1877	70	12.8	75	16	85	23	92	24.3	97	37.8
Toledo, Ohio	Nov. 1, 1870	66	—14	65	—12	75	— 3	85	12	95	30
Unalashka, Alaska	Aug. 18, 1878	52	19	51	7	50	5	53	18	60	24
Verde, Fort, Ariz	Nov. 9, 1874	73	1.4	81	10	90	11	96	27	97	37
Vicksburg, Miss	Sept. 10, 1871	80	10	83.1	21	85	27	90	31	95	46
Washington City	Nov. 1, 1870	71	—14	78	— 1.5	70	4	90	22.5	96	33.5
West Las Animas, Colo	Oct. 1, 1881	61.5	—21.5	68	—22.5	77	6	82.5	18	91	30.5
Wilmington, N. C	Jan. 1, 1871	77	15	81	15	84	20	90	28	95	38
Yankton, Dak	April 1, 1873	67	—32	68	—23	87	—16	89	— 3	94	24
Yuma, Ariz	Nov. 18, 1873	80	22.5	90	25	100	31	105	40	108.7	49

stations of the Signal Service, United States Army, &c.—Continued.

June.		July.		August.		September.		October.		November.		December.	
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
°	°	°	°	°	°	°	°	°	°	°	°	°	°
99	55	100	62	90	62	95	53	90	38	79	23	78	8
96	47	100	58	100	50	97.1	40	90.5	25	80.5	11.5	75	—5
98	40	101	52	96	44	92	31	84	18	70	—21	60	—37
99	45	104	53.5	107	52	101	37	89	19	77	Zero.	72	—14
98	43	104.8	48	106.6	45	93.5	34	84	28	63.2	18	63	—16
98	55	100	61	102	60	97	47	90	39	83	10	74	6
103.5	47	98.1	51.2	99.8	50	103.5	44	96.5	42.5	86	34.2	88.2	30
100	49	102	57	104.6	56	99	42	88	27	78	4.5	74	—7
97	49	101.8	55	100	50	98.3	40	88	28	80.2	13	73	—5
76.3	35.7	80.2	46.8	83.2	42.8	80	34	77	24	60	8.4	51.5	3.3
88	57	89.5	65	91	63	87	58	87	47	78	28	69	17
92	33	92	41	100	30	88	29	64	14	60	—16	58	—14
95	31	100	40.3	96	34.7	97	28	87	18	66	—9	59	—20
100	54	99	60	102	59	98	44	92	29	82	16	74	3
94	40	95	50	98	42	94	32	83	22	70	—5	63	—21
100	61	101	63.8	100	67	96	53	91	34	82	27	77	14
105.5	58	106.9	60.8	103	61.5	97	51.5	95	33	83	21	77	8
103	32	95.1	43	93.5	38	88	17	71	15	55	—15	55	—34
71	15	72	27	74	20	65	11	59	—3	47.3	—40	41	—47
99	49	101.2	56.3	104	54.7	98.2	41	89	28	80.6	13	75	—2
92	42	95	51	90	46	100	35	86	24	71.5	2	62	—6
89	43	93	51	90	48	92	37	82.7	27.2	73	4	60.5	—7.5
97	65	96	69.8	96.5	69	92	58	88.7	40	82	31.5	78	20
95	47	99	57	96	53	100.2	36	88.3	31	74	7	66.2	—6
102	53	102.5	60	90	58	96	50.5	89	31	80	20	73	6
101	33	107	45	103	42	101	21	89	11	79	—10	67	—27
95	36	93.5	40	86	41	81	31	73	23	59	21	59	8
98	42	105	51	105	49	98.8	30	87	15	74	—6	66	—17
98	40.5	100	49	97.5	49	93.4	36	84	28	71	—1	65	—14
96	55	98	63	97	64	95.5	49	94	41	86	26.5	76	23
97	64	97	64.2	93	69	93	57.3	89	45	81.3	28.1	76	17
97	49	100	56	99	53	101.5	43	87	31	77	8	70	—5
63	2	64	18	62	15	55	6	47	—17	33	—36	30	—37
98	39	102.7	52	99.8	49	101.6	35	91	28	79	4	69	—9
90	37	95	48.9	96.5	46	97	31	86	24	67.6	—6	65	—14
94	42	97	51	95	48	94.5	37	83	28	66	—6	57	—17
99	42	95.5	46	91	43	90	39	79	31	68	22.5	63	3
102	32	03	42	99	38	00	29	86	18	75	—1	70	—18
90	45.5	193	52	90.5	53	179	45.5	73	34.1	68	22.8	53.5	—0.4
75	37	74	43	74	39	69	32	65	21	44	9	42	—9
105	47	110	53	110.5	52	106	56	94	32	80	26	74	25
109	62	109	62	112	68	107	53	105	43	92.7	30	88	24
94	36	96	48	96	47	98	34	87	19	71	1	70	—11
96.5	37.5	97	40	94.5	40.5	90	34.6	76	22.5	66	17.5	65	7
102.5	48	103.5	51	103	49	101	44.4	88	36.4	76	27	68	23.5
99	48	104	57	106.4	55	101.5	40	90	25	82	5	74	—17
75	22	75	33	67	32	66.5	19	60	3	42	—24	45	—43
94	39	100	46	98	43	94	30	87	15	72	—24.5	56	—39
93	29	93	40	90	36	89	17	77	11	57	—22	42	—42
100	37	98	45	101	44	93	36	83	22	70	3	61	—10
94	51	86	54	86	54	101	49.5	92	44	85	38	82	32
92	47	96	56	98	48.5	95.8	42	87	30	75	Zero.	63	—13
97	49	100	50	96.2	55	101	46	87	33	73	8	68.5	—5
98	71	99.4	70	96.9	69	91	66.5	91.6	62	82.3	50.5	80.5	36
95.2	48	83	49	89	50	92	50	84	45	78	41	68	34
100	59	105	66	100	63	96	54	91.5	37	82	22	80	15
96	36	96	37	99	33	91	23.5	80	—2	60	—26.5	59	—42
104	55	107	64	105	58	101	47	95	31	86	18	79	10
105	47	106	56	105	53	100	44	91	25	83	—4	77	2
69.6	38	67.5	43	79	42.6	69.4	34.5	60.8	26	54	5	52.8	9
97	53	100	61	97.5	58	93	49	85	35	78	23	71	10
95.4	39	97.5	43	101.5	38	87	31	70.4	18	58	3	50	2.2
94	48.7	101.5	54	99.5	52	94.7	38	88	26	76	6	64	—14
106.6	46	106	50	105	51	100	40	96	29	87.6	12	81	8
87	40.1	89.9	50	85	45.5	95	39.5	81	28	66	9	67.4	—7
109	45	109	52	105	49	100	43	89.5	26	81.5	16	72	18
99	43	97	50	97	47	95	36	86	25	72	5	66	—15
65	34	78	37	78	36	68	33	62	24	58	19	50	12
109.5	45	114	48	106	51	104	34	95	27.3	80	8	71	6
101	53	100	62	100	62	98	48	93.4	34	84.5	28	70	12
102.5	46.5	102	57	101	50	104.3	38	92.3	26	80	12.5	73	—18
100	40.5	104	52	101	49.5	97.5	35	90	19	77	—1	69	—6.5
100	52	103	62	99	56	96	47	90	32	83	20	78	10
97	38	103	44	103	45	100	26	89	9	76	—15	62	—34
117	56	118	61	115	64	113	50	102	41.4	91	31	80	27

APPENDIX 38.

Table showing the highest temperatures (in degrees Fahrenheit) recorded at Signal Service each, to Decem

[Obtained from self-

Stations.	January.		February.		March.		April.		May.	
	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
Albany, N. Y	59	1876	58	1880	64	1878	80	1881	92	1880
Alexander, Fort, Alaska	40	1882, 1883	37	1883	41	1883	48	1882	61	1882
Alpena, Mich	52	1876, 1880	58	1880	66	1879	76	1881	91	1874
Apache, Fort, Ariz	67	1881, 1882	74	1881	83	1879	89	1879	93	1881
Assinabone, Fort, Mont	46	1882	56	1882	67	1882	81	1881	79	1881
Atlanta, Ga	73	1879, 1882	74	1880	81	1882	86	1880	91	1879
Atlantic City, N. J	64	1880	71	1880	72	1880	79	1878	89	1877, 1880, 1881
Augusta, Ga	79	1879	81	1880	89.3	1882	90	1880	100	1878
Baltimore, Md	71	1876	78	1874	76	1880	84	1881	95	1881
Barnegat City, N. J	61	1874, 1879, 1880	70	1880	73	1880	79	1880	91	1880
Behring's Island, Behring Sea	33	1883	38	1883	33.9	1883	38	1883	43.6	1883
Bennett, Fort, Dak	55	1882	63	1882	78	1882	86	1882	92	1881
Benton, Fort, Mont	58	1880	62	1882	74	1882	81	1880	93	1875
Bismarck, Dak	49	1880	60	1877, 1882	72	1878	80	1881	92	1880
Block Island, R. I	56	1883	51.5	1882	54	1883	62	1883	78.3	1881
Boisé City, Idaho	57	1880	64	1879	76	1881	80	1879	88	1881
Boston, Mass	69.5	1876	64	1880	72	1880	85	1872	97	1880
Brownsville, Tex	83	1876	85	1876	92	1876, 1879	97	1878, 1879	99	1877
Buffalo, N. Y	65.5	1874	63.8	1883	72	1875	82.6	1883	87	1876
Buford, Fort, Dak	47	1880	57	1882	70	1879, 1882	92	1881	95	1880
Cairo, Ill	70	1876, 1880	74	1883	84	1879	89	1872	92	1874
Cape Henry, Va	78	1876	80	1880	83	1879	85	1876, 1878, 1880, 1881	93	1875
Cape May, N. J	58	1874, 1876	59	1880	65	1880	76	1879	81	1874, 1880
Cedar Keys, Fla	77	1880	79	1883	82	1882	88	1880	91	1880, 1881
Charleston, S. C	80	1879	78	1876– 1880, 1882, 1883	85	1882	87	1880	94	1878
Charlotte, N. C	70	1879, 1880	76.5	1883	79	1879, 1880	85	1880, 1881	94.4	1881
Chattanooga, Tenn	73	1879	74	1880, 1883	82.5	1882	88	1880	93	1879
Cheyenne, Wyo	63	1880	59	1879, 1880, 1881	77	1879	80	1874	88	1874
Chicago, Ill	65	1876	63	1876, 1880	73	1875	83	1873	89	1874

APPENDIX 38.

stations for each month of the year (compiled from the commencement of observations at
ber 31, 1883.)

registering thermometers.]

June.		July.		August.		September.		October.		November.		December.		Highest on record.	
°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
92	1874	93	1876, 1880	93	1876	96	1881	84	1881	70	1876	63	1881	96	1881
78	1882	......	......	......	......	......	......	......	......	......	......	......	......	......	......
97	1874	97	1876	92	1878	92	1881	83	1879	63	1874	56	1875	97	1874, 1876
101	1883	102.5	1881	98	1879	96	1883	83	1881	77	1882	70	1881, 1882	102.5	1881
101	1883	95	1882	98	1882	86	1882	76	1880	62	1883	56	1881	101	1883
94.8	1881	97.5	1881	96.2	1881	90.5	1881	86	1883	80.5	1882	71	1879	97.5	1881
93	1874, 1880, 1881	99	1880	91.8	1881	94	1880	83	1881	72	1882	64	1877	99	1880
101.8	1881	105	1878	105	1878	97	1875	92	1883	84	1879	77	1874, 1875, 1880	105	1878
97.5	1874	99	1876, 1879, 1880	98	1881	101	1881	89	1879, 1881	78	1879	71	1881	101	1881
95.6	1882	96	1879	95	1874	96	1881	82.5	1881	73	1879	63	1875	96	1879, 1881
60.7	1882	55.0	1883	63.6	1882	58.5	1882	......	......	......	......	......	......	......	......
98	1881	101	1881	104	1881, 1882	95	1882, 1883	90	1880	65	1881	62	1881	104	1881, 1882
101	1881	107	1881	108	1881	95	1881	87	1875	70	1873	67	1881	108	1881
99	1883	102	1881	105	1876	94	1882	88	1879	67	1876	60	1881	105	1876
81.5	1882	86	1881, 1882	82	1882	86.5	1881	75.4	1881	70	1881	59.5	1882	86.5	1881
98	1883	106	1877	105	1883	96	1879	85	1879, 1880	70	1878	59	1879	106	1877
98	1874	101	1880	96.8	1881	101.5	1881	90	1881	75	1876	66	1881	101.5	1881
102	1878	98	1877	101	1883, 1877	96	1877, 1878, 1883, 1879	95	1877	89	1882	83	1875, 1880	102	1878
92	1878	90	1878	90.8	1881	86.8	1881	83	1879	68.3	1881	62	1875	92	1878
107	1883	104	1881	107	1882	100	1882	95	1879	62	1879	51	1881	107	1882, 1883
96	1872	99	1874, 1881	103	1881	97	1881	88	1872, 1881	80.5	1882	72	1875	103	1881
98	1874	101	1875, 1878	103	1881	94	1875, 1877, 1881	89	1879, 1881, 1883	81	1876, 1879, 1883	76	1875	103	1881
89	1873, 1880	91	1872	88	1873, 1877	87	1880	81	1879, 1881	69	1879	62	1881	91	1872
94	1880	94	1880, 1881	96	1883	94	1881	89	1881	81	1881, 1882	78	1881	96	1883
100	1877, 1880	104	1879	97.5	1881	94	1876	93	1883	82	1879	76	1881	104	1879
97	1881	101	1879	100.5	1881	94	1881	87	1879, 1881	80	1879	70	1879, 1881	101	1879
95	1881	101	1879	100.5	1881	96	1881	86	1879	78	1882	72	1879	101	1879
97	1880, 1881	100.5	1881	96.1	1882	88	1875	80	1873, 1874, 1879	69	1876	64	1877	100.5	1881
98	1872	99	1874	98	1874	93.0	1881	84	1879	72	1874, 1882	68	1875	99	1874

Table showing the highest temperatures (in degrees Fahrenheit) recorded at

Stations.	January.		February.		March.		April.		May.	
	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
Chincoteague, Va	60	1882	71	1883	72.2	1882	79	1881	88	1881
Cincinnati, Ohio	69	1876	73	1883	77	1875	85	1872, 1878	94	1874, 1875
Cleveland, Ohio	70	1874	72	1883	76	1875	85	1872, 1883	92	1879
Columbus, Ohio	64	1880	72	1883	71	1879	86	1883	92	1881
Concho, Fort, Tex	78	1879	87	1880	97	1879	98	1880	107	1879
Custer, Fort, Mont	60	1880	65	1881	76	1882	85	1881	84	1880, 1881, 1882, 1883
Davenport, Iowa	60	1874	66.7	1882	74	1875	81	1879	90	1874
Davis, Fort, Tex	77	1880	79	1879	87	1879	95	1879	101	1881
Dayton, Wash. T	61	1880	64	1881	83	1881	91	1880	90	1880
Deadwood, Dak	62	1883	62	1883	73	1882	82	1881	84	1880
Delaware Breakwater, Del	56	1882	66	1880	83	1880	79	1880	89	1880
Denver, Colo	67	1882	73	1879	81	1879	83	1874	92	1874
Des Moines, Iowa	63	1880	68	1880	80	1880	89	1883	93	1880
Detroit, Mich	65	1876	60	1880	75	1875	78.5	1883	90.5	1881
Dodge City, Kans	70	1876	78	1876	89	1879	92	1880	98	1879, 1880
Dubuque, Iowa	62	1874	67.2	1882	75	1875	84	1879	94	1874
Duluth, Minn	51	1877	57	1877	62	1878, 1879	75	1881	91	1874
Eastport, Me	51	1874	47	1874, 1878	58	1878	63	1877	80	1877
Elliott, Fort, Tex	81	1880	78	1880	86	1880	96	1880	94	1880
El Paso, Tex	74	1880, 1881	82	1879	88	1879, 1882	98	1879	101	1879, 1881
Erie, Pa	73	1876	70	1883	78	1875	86	1883	91	1879
Escanaba, Mich	45	1879	52	1877	57	1879	65	1875, 1880	83	1881
Fort Smith, Ark	68.5	1883	78.4	1883	82.5	1883	88.5	1883	93.8	1883
Galveston, Tex	75	1876, 1880, 1882	75	1882	85	1879	85	1878	91	1875, 1877
Grand Haven, Mich	57	1880	58	1880	71	1878	80	1883	86	1877
Grant, Fort, Ariz	77	1879	80	1879	87	1879	93	1879	94	1879
Hatteras, N. C	64	1882	69	1882	69	1882	75	1881	88	1881
Helena, Mont	50	1883	60	1881	66	1881	73	1881	77	1880, 1881, 1882
Huron, Dak	45.5	1882	57.2	1882	74.8	1882	81.2	1882	78.8	1883
Indianapolis, Ind	69	1876	72	1883	77	1875	85.3	1883	89	1874, 1881
Indianola, Tex	80	1880	80	1875, 1880	90	1879	91	1877	95	1879
Jacksonville, Fla	80	1875, 1876, 1877– 1879	83	1876, 1883	88	1882	91	1874, 1880	98.5	1878
Keokuk, Iowa	64	1874	69	1882	80	1875	85	1883	92	1874
Key West, Fla	90	1877	87	1874	89	1873, 1874	91	1881	98.2	1881
Kitty Hawk, N. C	73	1876	77	1880	80	1878, 1880	84	1878, 1880	93	1880
Knoxville, Tenn	74	1876	79	1871	83	1882	88	1872	94	1877

Signal Service stations for each month of the year, &c.—Continued.

June.		July.		August.		September.		October.		November.		December.		Highest on record.	
°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
93	1880	94	1881, 1881	91	1881	86	1880, 1881, 1882	88	1883	79	1882	64	1881	94	1880, 1881
98.5	1874	103.5	1881	101	1881	95	1881	86	1879	75	1879	72	1875	103.5	1881
96	1874	96	1878	98.7	1881	98	1881	87	1879	72.5	1882	68	1875	98.7	1881
93	1879	103	1881	98	1881	98	1881	86	1879	74	1879	63	1881	103	1881
110	1883	106	1879	103.4	1883	100	1879	97	1877	85	1882	80	1879, 1880	110	1882
107	1883	103	1881	103	1882	95	1883	87	1879	69	1879	61	1881	107	1883
93	1874	98	1874	96.8	1881	94	1881	85	1879	71	1874, 1879	63	1877	98	1874
111	1881	110	1881	97	1881, 1883	94	1883	90	1881	81.6	1883	80	1881	111	1881
97	1880	102	1880	101	1882	91.3	1881	92	1880	66	1883	50.8	1881	102	1880
95	1880, 1881	102	1881	101	1881	91	1881	77	1880	68	1878	58.7	1883	102	1881
89	1880	91	1880	93	1881	93	1881	84	1881	73	1881	69	1881	93	1881
99	1873	102.3	1874	105	1878	93	1878	86	1873	76	1876, 1879	71	1874	105	1878
95.5	1881	98.5	1881	103	1881	93	1881	85	1879, 1878	71	1882	57	1883	103	1881
96	1874	100	1878	98.8	1881	97	1874	85	1879	69	1879, 1882	05	1875	100	1878
102	1880	108	1876	101.6	1881	99.3	1881	90	1883	83	1875	73	1875	108	1876
98	1874	101	1874	97.3	1881	94.2	1881	86	1879	69	1874, 1879	64	1877	101	1874
92.2	1883	99	1883	98	1881	90	1874	78	1879	65	1874	51	1883	99	1883
81	1878	86	1873, 1880	88	1880	81	1881	80	1879	64	1882	54	1877	88	1880
100	1880, 1881	102	1881	101	1881	98	1881	88	1880	81	1882	83	1880	102	1881
113	1883	110	1883	105	1882	104	1879	94	1879	82	1883	74.8	1881	113	1883
91	1874, 1875	94	1878	93	1881	92	1881	85	1879	73	1882	68	1875	94	1878
88	1874, 1881	92	1874, 1878	89	1876, 1878	84	1880	75	1879	61	1874	48	1875	92	1874, 1878
101	1882	100	1882	101.3	1882	99.4	1882	94	1883	86	1882	78.1	1883	101.3	1882
97	1875	97	1875	98.5	1874	94	1875, 1876	87	1876, 1877, 1878, 1881, 1883	82	1875, 1876	75	1879, 1881, 1883	98.5	1874
88	1874	90	1878	92	1881	85	1878	80	1879	69	1874	61	1877	93	1881
101.5	1883	100	1879, 1880	103	1879	98	1879	91	1878	79	1878, 1879	74	1878	103	1879
91	1882	92	1881	92	1881, 1883	90	1881	90	1881	79	1882	68	1880, 1881, 1883	92	1881, 1883
95	1880	98	1880	95	1880	86	1880	75	1880	60	1883	52	1883	98	1880
94.1	1883	99.2	1883	95.6	1881	93.2	1882	80.9	1882	64.9	1881	58	1881	99.2	1883
96	1874	101	1881	101	1881	94.5	1881	86	1879	75	1879	68	1875	101	1881
96	1878	98	1872, 1876, 1879	100	1874, 1877	96	1877	93	1877	87.8	1882	79	1879	100	1874, 1877
100.5	1880	104	1879	100	1874	98	1875	92	1883	84	1875, 1877	81	1875	104	1879
96	1873	100	1874	102	1873	97	1881	87	1879	74	1874, 1882	68	1875	102	1873
95.5	1881	97	1880	95.4	1881	95	1872	92	1876	91	1876	88	1876	97	1880
99	1880	100	1876	99	1881	95	1880	90	1881	79	1879	73	1875, 1879	100	1876
96	1880	100	1879	100	1881	97.1	1881	90.5	1879	80.5	1881	75	1874	100	1879, 1881

Table showing the highest temperatures (in degrees Fahrenheit) recorded at

Stations.	January.		February.		March.		April.		May.	
	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
La Crosse, Wis	59	1874	65	1882	72	1875	83	1879	96	1874
Leavenworth, Kans	65	1876	73	1876	84	1879	89	1880	94	1874, 1875
Lewiston, Idaho	59	1880	63	1881	78.5	1882	86	1880	88	1881
Little Rock, Ark	78	1880	77	1882	83	1882	94	1880	91	1880
Los Angeles, Cal	82	1883	86	1881	99	1879	94	1881	100	1883
Louisville, Ky	71	1876	77.5	1883	79	1879	88.5	1883	93	1881
Lynchburg, Va	72	1876, 1879	75	1874	79	1879	91.5	1873	94	1877
Mackinaw City, Mich	37	1883	43	1883	50	1883	61	1883	79.5	1883
Macon, Fort, N. C	68	1882	70	1882	69	1881	73	1883	91	1881
Maginnis, Fort, Mont	45	1883	57	1883	58	1883	64	1883	68	1883
Marquette, Mich	56	1880	69	1877	70	1878	81	1877	92	1879
Memphis, Tenn	73	1876	79	1883	85	1879	88	1882, 1883	96	1879
Milwaukee, Wis	59	1871	60	1882	70	1878	82	1871	90	1874
Mobile, Ala	78	1882	78	1883	85	1879	90	1881, 1883	96	1878
Montgomery, Ala	78.5	1882	81.2	1883	86.8	1882	90	1880	98	1875
Moorhead, Minn	37	1883	49	1882	50	1882	74	1883	88	1881
Mount Washington, N. H	42	1874	43	1883	47	1876	50	1883	62	1879, 1880
Nashville, Tenn	74	1879	77.4	1883	81.7	1882	90	1872	93	1874, 1879
New Haven, Conn	63	1876	65	1880	69	1880	75	1880	89	1880
New London, Conn	65	1880	62	1880	64	1878	74	1880	89	1881
New Orleans, La	78	1879	80	1883	84	1879	86	1883	92	1877
New York City	64	1876, 1880	69	1874	72	1879	81	1872, 1877	94	1880
Norfolk, Va	80	1871	81	1871	81	1880	92	1871	98	1880
North Platte, Nebr	70	1880	68.3	1882	86	1879	92	1880	94	1880
Olympia, Wash. T	53	1881	58	1881	71	1881	82	1880	87	1878
Omaha, Nebr	62	1879, 1880	66	1880	82	1879	89	1880	92	1880
Oswego, N. Y	64	1874	61	1880	67	1871	78	1872	94	1879
Palestine, Tex	75.5	1883	78	1882	84	1882	87.5	1883	90	1883
Pensacola, Fla	73.6	1882	78.3	1883	79.2	1882	87.2	1883	93	1881
Philadelphia, Pa	67	1876	75	1874	75	1880	87	1872	96	1880
Pike's Peak, Colo	30	1879	29	1876	43	1879	39	1876	47	1880
Pittsburg, Pa	75	1874	76.5	1883	80	1876	88	1878	95	1881
Port Huron, Mich	64	1876	59	1880	73	1875	81.4	1883	88	1881
Portland, Me	58	1876	58	1880	65	1874	78	1881	94	1880
Portland, Oreg	58	1876, 1877	63	1881	76.5	1881	85	1880	86	1878
Prescott, Ariz	71	1882	80	1879	90	1879	86	1879	90	1878
Provincetown, Mass	46.5	1883	44.5	1883	55	1882	64	1882	74.5	1883
Red Bluff, Cal	71.5	1880	80	1883	85	1881	90	1878	101.4	1882
Rio Grande City, Tex	90	1879	92	1882	98	1879	109	1878	112	1879
Rochester, N. Y	69	1874	63	1875	69	1875	83.5	1883	90	1879

Signal Service stations for each month of the year, &c.—Continued.

June.		July.		August.		September.		October.		November.		December.		Highest on record.	
°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
96	1874	101	1874	96	1874, 1881	93	1873	84	1879	70	1874	60	1877	101	1874
99	1875	104	1874	107	1874	101	1882	89	1871, 1874	77	1874	72	1875	107	1874
98	1883	104.8	1882	106.6	1882	98.5	1883	84	1880	63.2	1883	54	1880, 1883	106.6	1882
96	1882	100	1879, 1881	102	1881	97	1881	90	1881, 1883	88	1882	74	1880, 1883	102	1881
103.5	1879	96.1	1882	99.8	1881	103.5	1883	96.5	1879	86	1877	63.2	1878	103.5	1879, 1883
100	1874	103	1874	104.6	1881	99	1881	88	1879	78	1879	74	1875	104.6	1881
97	1874	101.8	1881	100	1881	98.8	1881	88	1879	80.2	1882	73	1873	101.8	1881
76.3	1883	80.2	1883	83.2	1883	80	1882	77	1882	60	1882	51.5	1883	83.2	1883
88	1881	89.5	1883	91	1883	87	1881	87	1881	78	1882	69	1881	91	1881, 1883
93	1883	92	1882	100	1882	88	1882	64	1882	60	1883	58	1883	100	1882
95	1879	100	1878	96	1879	97	1874	87	1879	66	1874	59	1875	100	1878
100	1881	99	1879, 1875, 1881	102	1881	98	1881	92	1879	82	1879	74	1875	102	1881
94	1872, 1874	96	1871, 1874, 1878	98	1874	94	1872, 1874	83	1871	70	1874, 1882	63	1877	98	1874
100	1877, 1882	101	1883	100	1874	96	1881	91	1883	82	1879, 1882	77	1880	101	1883
105.5	1881	106.9	1881	103	1874	97	1875	95	1883	83	1879, 1882	77	1880	106.9	1881
100.3	1883	95.1	1881	93.5	1882	88	1882	71	1883	55	1883	55	1883	100.3	1883
71	1878	72	1881	74	1872	65	1880	59	1871	47.3	1881	41	1873	74	1872
99	1874	101.2	1881	104	1874	98.2	1881	89	1879, 1881	80.6	1882	75	1874	104	1874
92	1880	95	1876	90	1873, 1876, 1881	100	1881	86	1881	71.5	1882	62	1875	100	1881
89	1880	93	1876, 1878	90	1873	92	1881	82.7	1879	72	1882	60.5	1879	93	1876, 1878
97	1881	96	1877	96.5	1877	93	1875, 1877, 1881	88.7	1883	82	1879, 1882	78	1875, 1879, 1880, 1881	96.5	1877
95	1875	99	1876	96	1881	100.2	1881	88.8	1881	74	1882	66.2	1881	100.2	1881
102	1874	102.5	1876	99	1881	96	1880	89	1881	80	1879	73	1873, 1874, 1875 1879	102.5	1876
101	1876	107	1877	103	1878	101	1881	89	1879	79	1876	67	1878	107	1877
95	1875	93.5	1880	86	1882	81	1877, 1879	73	1880	59	1879	59	1880	95	1878
98	1881	105	1874	105	1874	96.8	1881	87	1879	74	1874	66	1875	105	1874
98	1875	100	1878	97.5	1883	93.4	1881	84	1877	71	1876	65	1875	100	1878
96	1882	98	1882	97	1883	95.5	1883	94	1883	80	1882	76	1881	98	1882
97	1881	97	1881	93	1880, 1881	93	1881	89	1881	81.3	1882	76	1880	97	1881
97	1874	100	1876	99	1881	101.5	1881	87	1879, 1881	77	1876	70	1873	101.5	1881
63	1881	64	1879	62	1878	55	1875	47	1879	33	1878, 1879	30	1877	64	1879
98	1874	102.7	1881	99.8	1881	101.6	1881	91	1879	79	1876	69	1873, 1875, 1880	102.7	1881
90	1878, 1879	95	1878	96.5	1881	97	1881	86	1879	67.6	1882	65	1875	97	1881
94	1878	97	1876	95	1876	94.5	1881	83	1879, 1881	66	1882	57	1881	97	1876
99	1876	95.5	1875	91	1882	90	1876	79	1876	68	1873	63	1875, 1880	99	1876
102	1878	103	1878	99	1878	100	1879	86	1881	75	1878	70	1881	103	1878
90	1882	93	1882, 1883	90.5	1883	79	1882	73	1883	68	1882	53.5	1882	93	1882, 1883
105	1878	110	1879	110.5	1878	106	1877	94	1877	80	1879	74	1882	110.5	1878
109	1883	109	1877	112	1877	107	1877	105	1877	92.7	1883	88	1880	112	1877
94	1875	96	1881	96	1874, 1881	98	1881	87	1879	71	1876, 1879	70	1875	98	1881

Table showing the highest temperatures (in degrees Fahrenheit) recorded at

Stations.	January.		February.		March.		April.		May.	
	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
Roseburg, Oreg	65	1878	68.7	1883	80	1881	84.5	1880	86.5	1882
Sacramento, Cal	64	1881	72.5	1879	80	1882	94	1881	98	1883
Saint Louis, Mo	72	1880	73.2	1882	82	1879	87.5	1883	98	1874
Saint Michael's, Fort, Alaska	43.6	1883	41	1883	41	1878, 1882	44	1882	57	1877
Saint Paul, Minn	49	1879	59	1880	68	1879	82	1879, 1882	94	1874
Saint Vincent, Minn	35	1881	42	1882	49	1881	78	1881	85	1881
Salt Lake City, Utah	54	1879	68	1879	77	1879	83	1874	91	1874
San Diego, Cal	78	1877	82.6	1883	99	1879	87	1876	94	1879
Sandusky, Ohio	64	1880	70	1883	70	1878, 1879	80	1878	92	1879
Sandy Hook, N. J	68	1874	71	1874	67	1880	77	1880	98	1880
Sanford, Fla	86	1883	86	1883	86	1883	90.3	1883	98	1883
San Francisco, Cal	69	1877	70.5	1883	77	1879	81	1875	86	1883
Savannah, Ga	80	1879	80	1876, 1880, 1883	87	1882	89	1873	98	1878
Shaw, Fort, Mont	50	1882	58	1883	71	1882	80	1880	84	1881
Shreveport, La	78	1876, 1880	80.5	1876	90	1882	98	1880, 1872	101	1875
Sill, Fort, Ind. Ter	75	1880	79	1879, 1880	95	1879	96	1880	97	1880
Sitka, Alaska	50.8	1882, 1883	49.8	1883	55.8	1883	65.7	1883	69.2	1882
Smithville, N. C	78	1876	72	1880	74	1876	81	1878	90	1881
Spokane Falls, Wash. T	47.2	1883	52	1881	74	1881	72	1881	84	1882
Springfield, Ill	64	1880	72	1882	73	1882, 1883	85	1883	88	1881
Stockton, Fort, Tex	82	1880	83	1879	92	1879	101	1879	104	1879
Thatcher's Island, Mass	60	1880	60	1880	66	1880	76	1881	86	1880
Thomas, Camp, Ariz	70	1881	75	1881	85	1881	92	1881	97	1881
Toledo, Ohio	66	1873, 1876	65	1883	75	1875	85	1872	95	1871
Unalashka, Alaska	52	1882	51	1882	50	1882	58	1883	60	1882
Verde, Fort, Ariz	78	1879	81	1879	90	1881	96	1879	97	1879, 1880, 1883
Vicksburg, Miss	80	1879	83.1	1883	85	1878, 1880	90	1881	95	1874, 1877
Washington City	71	1874, 1876	78	1874	79	1880	90	1872	98	1880
West Las Animas, Colo	61.5	1883	68	1882	77	1882	82.5	1882, 1883	91	1883
Wilmington, N. C	77	1879	81	1880	84	1878	90	1880	95	1878
Yankton, Dak	76	1880	68	1876	87	1879	89	1874	94	1880
Yuma, Ariz	80	1879	90	1879	100	1879	105	1876	108.7	1883

Signal Service stations for each month of the year, &c.—Continued.

June.		July.		August.		September.		October.		November.		December.		Highest on record.	
°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
96.5	1878	97	1880	94.5	1882	90	1877, 1879	76	1877, 1880	60	1878	65	1880	97	1880
102.5	1883	103.5	1883	103	1879	101	1883	88	1877	76	1880	68	1882	103.5	1883
99	1881	104	1881	106.4	1881	101.5	1881	90	1879	82	1879	74	1875	106.4	1881
75	1876	75	1877	......	......	......	......	......	......	......	......	......	......	......	......
94	1874	100	1883	98	1880	94	1878	87	1879	72	1874	56	1877	100	1883
93	1883	93	1883	90	1882	89	1883	77	1880	57	1883	42	1883	93	1883
100	1883	98	1877	101	1875	93	1875	83	1876	71	1882	61	1874	101	1875
94	1877	86	1877	86	1872	101	1883	92	1879	85	1878	82	1874	101	1883
93	1880	96	1879	98	1881	95.8	1881	87	1879	75	1879	68	1879	98	1881
97	1874	100	1876	96.2	1881	101	1881	87	1881	73	1881	68.5	1881	101	1881
98	1883	99.4	1883	96.9	1883	91	1883	91.8	1883	82.3	1883	80.5	1883	99.4	1883
95.2	1883	83	1881	89	1879	92	1877	84	1871	78	1871	68	1878	95.2	1883
100	1880	105	1879	100	1878	96	1876, 1877	91.5	1883	82	1875	80	1875	105	1879
96	1880	96	1881, 1882	99	1881	91	1880	80	1880	60	1883	59	1883	99	1881
104	1875	107	1875	105	1881	101	1881	96.0	1883	86	1882	79	1875	107	1875
106	1881	106	1881	105	1881	100	1881	91	1878	83	1879	77	1880	106	1881
69.6	1882	67.5	1883	79	1881	69.4	1883	60.8	1882	54.0	1882	52.8	1883	79	1881
97	1880	100	1879	97.5	1876	98	1876	85	1876, 1879	78	1877	71	1875	100	1879
95.4	1883	97.5	1882	101.5	1882	87	1881	70.4	1883	58	1881	50	1881	101.5	1882
94	1881	101.5	1879	99.5	1881	94.7	1881	88	1879	76	1879	64	1883	101.5	1879
106.6	1881	106	1879	105	1877	100	1879	96	1878	87.6	1883	81	1879, 1881	106.6	1881
87	1882	89.9	1882	85	1876, 1879, 1880	95	1881	81	1879	66	1882	67.4	1881	95	1881
109	1883	109	1881	105	1882	100	1883	89.5	1883	81.5	1882	72	1881	109	1881, 1883
99	1872	97	1872, 1874	97	1881	95	1881	86	1872	72	1876, 1882	66	1875	99	1872
65	1881	78	1882	78	1881	66	1881	62	1881	58	1881	50	1881	78	1881, 1882
100.5	1881	114	1881, 1878	106	1878	103	1883	95	1881	80	1678	71	1878	114	1881
101	1881	100	1881	106	1878	98	1881	98.4	1883	84.5	1882	79	1878, 1875	101	1881
102.5	1874	102	1879	101	1881	104.3	1881	92.3	1881	80	1879	73	1873	104.3	1881
100	1882	104	1883	101	1882	97.5	1883	90	1881	77	1883	60	1882	104	1883
100	1880	108	1879	99	1878	96	1872	90	1883	88	1877, 1879	78	1879	108	1879
97	1876	103	1883	108	1873	100	1881	89	1879	76	1876	62	1875	108	1878, 1883
117	1883	118	1878	115	1879	113	1879	102	1876, 1879	91	1879	80	1878	118	1878

APPENDIX 39.

Table showing the lowest temperatures (in degrees Fahrenheit) recorded at Signal Service each to Decem

[Obtained from self-

Stations.	January.		February.		March.		April.		May.	
	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
Albany, N. Y	—18	1878	—18	1875	— 4	1875	13	1874	29	1874, 1876
Alexander, Fort, Alaska	—18	1882	—26	1882	— 6	1882	8	1882	23	1882
Alpena, Mich	—27	1882	—27	1881	—14	1873	— 2	1881	22	1883
Apache, Fort, Ariz	— 6	1883	— 9	1880	11	1881	15	1883	29	1880, 1883
Assinaboine, Fort, Mont	—43	1883	—47	1883	—13	1882	7	1881	20	1881
Atlanta, Ga	9	1879	21	1881	27	1883	25	1881	30.5	1883
Atlantic City, N. J	— 3	1875	— 5	1875	10	1878	19	1875	33	1876, 1880
Augusta, Ga	15	1873	22	1875	22	1873	31	1881	42	1877
Baltimore, Md	— 6	1881	2	1873	5	1873	23.5	1875	34	1876
Barnegat City, N. J	—10	1875	— 4	1881	10	1875	19	1875	34	1876, 1880
Behring's Island, Behring Sea	7.8	1883	11.8	1883	13.6	1883	10.9	1883	28.2	1883
Bennett, Fort, Dak	—42	1883	—34	1881	—11	1881	4	1881	30	1883
Benton, Fort, Mont	—55	1875	—41	1883	—42	1876	— 6	1875	26	1883
Bismarck, Dak	—37	1883	—31	1875	—26	1875	1	1881	21	1875
Block Island, R. I	— 4	1882	2	1881	10	1883	25	1881	36	1882
Boise City, Idaho	—27	1883	—12	1883	9	1882	17.5	1883	29	1878
Boston, Mass	—13	1882	— 6.5	1876	— 7.5	1872	11	1874	31	1882
Brownsville, Tex	18	1881	27	1883	35	1880	43	1881	49	1877
Buffalo, N. Y	— 6	1883	—13	1875	2	1883	11	1881	29	1876
Buford, Fort, Dak	—46	1883	—40	1883	—28	1880	7	1880	22	1882, 1883
Cairo, Ill	—11	1875	4	1875	10	1873	24	1875	37	1875
Cape Henry, Va	9	1879	11	1875	12	1883	28	1875	41	1876
Cape May, N. J	1	1879	2	1875	9	1872	24	1875	34	1882
Cedar Keys, Fla	32	1883	35	1881	40	1881	38	1881	50	1883
Charleston, S. C	23	1879	26	1881	28	1876	32	1881	47	1876
Charlotte, N. C	11	1879, 1881	22	1879, 1881	26	1879, 1883	28	1881	40.5	1883
Chattanooga, Tenn	13	1881	16	1879	28	1879, 1881, 1883	25	1881	41	1879
Cheyenne, Wyo	—38	1875	—28	1883	—17	1880	2	1875	23	1874, 1873
Chicago, Ill	—20	1875	—13	1875	—12	1873	17	1875, 1879, 1881	27	1875
Chincoteague, Va	8	1882	5	1881	17	1883	26	1881	40	1880
Cincinnati, Ohio	—10	1879	— 1	1875	1	1873	18	1875	35	1883
Cleveland, Ohio	—17	1873	—11.2	1875	— 2	1873	15	1875	28.3	1876
Columbus, Ohio	—20	1879	— 2	1881	14	1883	15	1881	34	1883

APPENDIX 39.

stations for each month of the year (compiled from the commencement of observations at ber 31, 1883).

registering thermometers.]

June.		July.		August.		September.		October.		November.		December.		Lowest on record.	
°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
40	1875, 1878	48	1876	45	1875	33	1875, 1879	23	1876	—10	1875	—17	1875	—18	1875, 1878
35	1882	......	......	......	......	......	......	......	......	......	......	......	......	......	......
33.5	1881	45	1876, 1882, 1883	40	1883	29.3	1883	22	1873	— 4	1880	—15	1880	—27	1881, 1882
36	1880, 1882	41	1879	41	1880	32	1880, 1882	19	1880	9	1880	— 2	1879	— 9	1880
31	1883	35	1881	37	1881	28	1882, 1883	—16	1881	—25	1880	—42	1880	—47	1883
54	1879	57.8	1882	57	1879	44	1879	35	1878	20	1881, 1883	1	1880	1	1880
45	1878	53	1880	53	1879	43	1875	29	1879	10	1875	— 7	1880	— 7	1880
57	1882	62	1876	61	1874	48	1876	29	1873	24	1873	7	1880	7	1880
49	1873	59	1876, 1882	52	1874	40	1873, 1879	30	1873, 1876, 1879	15	1880	— 3	1880	— 6	1881
47	1878	53	1879	53	1879	41	1875	28	1876	11	1875	— 7	1880	—10	1875
31.3	1882	36.1	1883	39.5	1883	34.2	1883	......	......	......	......	......	......	......	......
33	1882	46	1882	42	1883	27	1883	10	1880	—18	1880	—21	1880	—42	1883
27	1881	37	1874	34	1881	14	1878	— 6	1881	—31	1875	—50	1880	—59	1880
32	1875	48	1883	30	1875	10	1876	6	1874, 1878	—28	1875	—38	1879	—38	1879
47	1881	55	1883	55	1881	41.5	1883	35	1880	19	1880	— 1	1883	— 4	1882
36	1882	40	1883	30	1881	30	1881, 1882	19	1878	7	1880	— 4	1879, 1882	—27	1883
44	1876	46	1874	47	1880	34	1879	25	1879	— 2	1875	—12	1883	—18	1882
63	1877	68	1877	69	1881, 1879	57	1883	49	1879	30	1880	18	1880	18	1880, 1881
40.5	1879	47.5	1876	44	1880	33	1878	25	1876, 1879	2.5	1875	— 9	1880	—13	1875
30	1883	40	1883	36	1883	18	1883	9	1881	—20	1881	—46	1879	—46	1879, 1883
50	1877	60	1883	57	1880	42	1876	24	1878	7	1872	— 7	1872	—11	1875
52	1882	60	1881	60	1874, 1879, 1881	53	1880	39	1875, 1876, 1880	24	1880	7	1880	7	1880
47	1876	56	1880	55	1882	42	1871, 1873	31	1873	19	1875	2	1880	1	1879
65	1880	60	1881	69	1881	64	1880	49	1880	33	1881	22	1880	22	1880
60	1878, 1879	67	1876, 1881, 1882	62	1879	54	1879	39	1873	28	1878, 1881	13	1880	13	1880
52	1880	60	1882	56	1879	48	1879	30	1879	18	1080	— 5	1880	— 5	1880
51	1879	57.5	1882	57	1879	47	1879, 1880	35	1879, 1880	17	1883	3	1880	3	1880
28	1876	37.6	1883	34	1876	23	1876	— 4	1878	—20	1875	—24	1879, 1880	—38	1875
40	1875	50	1873	51.4	1882	37	1872, 1876	25	1873	— 2	1872	—38	1872	—28	1872
50.3	1883	59	1882	60	1880, 1881	46	1882	40	1880	18	1880	1	1880	1	1880
49	1877	58.2	1882	55	1872, 1875	41	1875	27	1873	5	1880	— 8	1872	—10	1879
40	1879	49.6	1883	45.6	1876	38	1875	26	1876	Zero.	1880	—12	1872, 1880	—17	1873
48	1879, 1882, 1883	54	1882, 1883	50	1883	37	1879	25	1879	— 5	1880	—12	1880	—20	1879

Table showing the lowest temperatures (in degrees Fahrenheit) recorded

Stations.	January.		February.		March.		April.		May.	
	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
Concho, Fort, Tex	— 1	1881	6	1883	16	1880	29	1882	46	1878
Custer, Fort, Mont	—31	1881	—38	1883	—23	1880	12	1883	22	1883
Davenport, Iowa	—23	1883	—16	1875	— 6	1873	16	1881	29	1875
Davis, Fort, Tex	Zero.	1881	9	1883	17	1880	25	1882	40	1880
Dayton, Wash. T	—23.5	1883	—24	1883	8	1880	21	1880	30	1881
Deadwood, Dak	—30	1883	—32	1883	— 5	1879	11	1880, 1881	21	1883
Delaware Breakwater, Del	10	1882	7	1881	19	1883	25	1881	40	1880
Denver, Colo	—29	1875	—22	1883	—10	1880	4	1876	27	1872, 1873
Des Moines, Iowa	—26	1883	—28	1883	— 3	1880	11	1881	33	1882
Detroit, Mich	—15	1875, 1879	—20	1875	— 7	1872	8	1875	29	1875
Dodge City, Kans	—20	1883	—20	1883	— 8	1880	13	1881	34	1877
Dubuque, Iowa	—26.2	1883	—31	1875	—10	1875	14	1875	27	1875
Duluth, Minn	—38	1875	—34	1875	—26	1875	3	1874, 1881	26	1876
Eastport, Me	—20	1874	—20	1876	— 4	1883	2	1874	29	1882
Elliott, Fort, Tex	—12	1883	—10	1883	— 2	1880	20	1881	38	1882
El Paso, Tex	5	1881	12	1881	21	1880	29	1882	41	1883
Erie, Pa	—15	1875	—16	1875	2	1877, 1883	11	1881	32	1875, 1877, 1882, 1883
Escanaba, Mich	—26	1881	—32	1875	—20	1875	2	1883	20	1882
Fort Smith, Ark	2.5	1883	8	1883	28	1883	37.2	1883	45	1883
Galveston, Tex	20	1883	30	1863	34	1875	44	1873	54	1876
Grand Haven, Mich	—12	1873	—24	1875	Zero.	1873, 1875	9	1874	28	1875
Grand Fork, Ariz	10	1883	17	1883	21	1882	29	1879	37	1882
Hatteras, N. C	22	1881	20	1781	32	1881, 1883	31	1881	47	1882
Helena, Mont	—34	1883	—32	1883	— 2	1882	6	1881	25	1883
Huron, Dak	—30.3	1883	—31.8	1883	— 7.8	1883	19.2	1882	28	1882
Indianapolis, Ind	—22	1879	— 8	1875	9	1877	19	1875	31	1877
Indianola, Tex	15	1873	21.5	1883	32	1880	32	1875	51	1872
Jacksonville, Fla	24	1873	32	1875, 1878	31	1873, 1876	37	1881	48	1877
Keokuk, Iowa	—20	1875, 1879	— 11	1873	— 2	1878	20	1875, 1881, 1879	29	1875
Key West, Fla	48	1879	55	1872, 1877, 1878	53	1878	61	1873, 1881	63	1877
Kitty Hawk, N. C	11	1879	11	1881	20	1876	29	1881	42	1876, 1877
Knoxville, Tenn	—14	1877	6	1873	6	1873	24	1875, 1881	37	1880
La Crosse, Wis	—43	1873	—34	1875	—23	1873	10	1881	29	1875
Leavenworth, Kans	—29	1873	—12	1883	2	1876	13	1881	31	1875
Lewiston, Idaho	—14.2	1883	—13.5	1883	12	1880	30	1880	35	1881
Little Rock, Ark	13	1883	22	1881, 1883	32	1880, 1881	29	1881	44	1883
Los Angeles, Cal	30	1880, 1883	28	1883	35.3	1882	39	1883	39.5	1883
Louisville, Ky	—10	1875, 1879	Zero.	1875	3	1873	21	1875	36	1875, 1876

at Signal Service stations for each month of the year, &c.—Continued.

June.		July.		August.		September.		October.		November.		December.		Lowest on record.	
°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
49	1879	60	1877, 1880	54	1880	45	1882	32	1878	12	1880	6	1880	— 1	1881
39	1883	41	1883	36	1883	29	1880	10	1879	—24	1880	—42	1880	—42	1880
43	1876, 1882	52	1880, 1883	48	1875	36	1879	18	1873	— 3	1875	—17	1872, 1876	—23	1883
49	1881	53	1881	47	1882	37	1883	30	1880	6	1880	1	1880	Zero.	1881
35. 5	1883	37. 4	1881	36	1883	29	1881	19	1881	5	1881	—17	1879	—24	1883
33	1880	42	1883, 1880	40	1882	29	1880, 1881	5	1880	—16	1880	—25	1878	—32	1883
50	1882	59	1882	60	1881	51	1882	38	1880	23	1880	1	1880	1	1880
37	1883	42	1873	44	1876	28	1873	1	1873	—.8	1877	—25	1876	—29	1875
44	1882	52	1882	48	1879, 1883	34	1879	15	1878	Zero.	1880	—17	1880	—26	1883
38	1875	50	1873, 1883	45	1875	29. 8	1883	22	1873	Zero.	1880	—24	1872	—24	1872
40	1879	50	1877	50	1880	30	1876	10	1878	— 7	1880	—15	1876	—20	1883
40	1877	50. 4	1882	41	1875	33	1873	20	1873	— 9	1875	—19	1876, 1879	—31	1875
36	1875, 1876	46	1875	45	1876	30	1879, 1883	8	1878	—29	1875	—34	1879	—38	1875
30	1875	45	1882	45	1880	35	1875	24	1881	—13	1875	—20	1875	—20	1874, 1875, 1876
44	1880, 1882	49	1880	48	1880, 1882	37	1880	26	1880	— 5	1880	—10	1879	—12	1883
50	1881	56	1880	52	1880	42	1880	28	1882	11	1880	— 5	1880	— 5	1880
42	1879	52	1883	50	1883	40	1879	28	1876	6	1880	—11	1880	—16	1875
34	1875, 1879	42	1875	38	1875	26	1883	17	1878	— 9	1880	—23	1880	—32	1875
50	1882	61	1882	60	1882	39 6	1883	39. 3	1883	22	1882	9. 5	1882	2. 5	1883
64	1877 1879	60	1880	70	1877, 1880, 1882	50	1875	45	1873	29	1880	18	1880	18	1880
40	1878, 1879	40	1873	42. 5	1875	30	1879	26	1876	Zero.	1880	— 4	1876	—24	1875
51	1882	56	1880	55	1882	47	1881	33	1881	20	1880	18	1880	10	1883
60	1882	68	1881	64	1881	60	1882	48	1882	32	1881	8	1880	8	1880
31	1880	38	1880	34	1880	30	1880, 1882	10	1881	—17	1880, 1881	—40	1880	—40	1880
34	1883	46	1883	42. 7	1883	28. 2	1883	21	1881	— 6	1881	—20. 5	1883	—31. 8	1883
45	1877, 1882	58	1882	48	1876	35	1875	28	1878	— 5	1880	—15	1876	—22	1879
60	1877	68	1877	67	1880	60	1878	46	1873, 1880	22	1880	14	1880	14	1880
62	1875, 1879	68	1879	66	1874, 1875	56	1874	40	1873	30	1873	19	1880	19	1880
45	1877	56	1873, 1880, 1883	47	1875	39	1875, 1876, 1883	20	1873	— 3	1872	—22	1872	—22	1872
71. 2	1882	72. 7	1883	72	1882	71. 5	1883	65	1873, 1876	52	1873	44	1876	44	1876
55	1877, 1878	62	1881, 1882	62	1879, 1881, 1882	58	1876	38	1876	23	1879	8	1880	8	1880
47	1878	58	1882	50	1879	40	1871	25	1876	11. 5	1872	— 5	1880	—14	1877
49	1876	52	1883, 1880	44	1875	31	1873	18	1873	—21	1875	—37	1872	—43	1873
45	1877, 1882	53. 5	1882	52	1871, 1879, 1880	37	1876	19	1873	Zero.	1872	—14	1880	—29	1871
43	1880	48	1880, 1881, 1882	45	1882	34	1883	28	1881	13	1880	—16	1879	—16	1879
56	1882	61	1882	60	1880, 1882	47	1881	39	1880	10	1880	6	1880	6	1880
47	1878	51. 2	1881	50	1883	44	1880	42. 5	1879	34. 2	1881	30	1878, 1879	28	1883
49	1875	57	1882	56	1880	42	1875 1876	27	1878	4 5	1872	— 7	1880	—10	1875, 1879

Table showing the lowest temperatures (in degrees Fahrenheit) recorded

Stations.	January.		February.		March.		April.		May.	
	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
Lynchburg, Va	— 4	1877	3	1875	17	1876	25	1881	37	1876
Mackinaw City, Mich	— 9	1883	—11	1883	— 9	1883	3	1883	28	1883
Macon, Fort, N. C	22	1883	20	1881	30. 3	1883	30	1881	48	1882
Maginnis, Fort, Mont	—29	1883	—35	1883	— 1	1883	14	1883	19	1883
Marquette, Mich	—26	1881	—27	1875	—14	1875	3	1875	22	1875
Memphis, Tenn	2	1875	13	1875	18	1876	27	1881	41	1883
Milwaukee, Wis	—25	1875	—22	1875	— 3	1873, 1877	12	1875	25	1875
Mobile, Ala	15	1879	28	1875, 1876	31	1873, 1876	32	1881	47. 3	1883
Montgomery, Ala	14	1873, 1879	22	1875	25	1873	30	1881	44	1883
Moorhead, Minn	—42	1883	—33	1881, 1883	—22	1883	—13	1881	26	1882
Mount Washington, N. H	—46	1875	—42	1876	—49	1872	—18	1874	— 1	1880
Nashville, Tenn	— 8	1877	9	1875, 1876	11	1873	25. 5	1875	37	1877
New Haven, Conn	—14	1873	— 4	1881	3	1863	16	1874	30. 5	1882
New London, Conn	—10	1882	— 6	1871	6	1883	19	1874	32	1876, 1882
New Orleans, La	20	1879	32. 5	1875	36. 5	1876	38	1881	56	1871, 1877
New York City	— 6	1875	— 4	1873	3	1872	20	1874	34	1876, 1880
Norfolk, Va	8	1879	9	1875	16	1872	27	1875, 1880	38	1876
North Platte, Nebr	—27	1881	—29	1883	—21	1880	12	1875	30	1875
Olympia, Wash. T	9	1883	8	1883	23	1880	28	1850	30	1882
Omaha, Nebr	—22. 1	1883	—24. 9	1883	— 7	1880	6	1881	28	1875
Oswego, N. Y	—13	1882	—10	1875	—11	1872	13	1874	31	1776
Palestine, Tex	7	1883	13. 5	1883	34	1882, 1883	43. 5	1882	50	1882
Pensacola, Fla	29	1881	31	1881	36	1881	34	1881	46. 6	1883
Philadelphia, Pa	— 5	1875	— 1	1881, 1875	5	1872	17. 5	1874	36	1880
Pike's Peak, Colo	—37	1883	—37	1875	—29	1875	—21	1875	— 8	1875
Pittsburg, Pa	—12	1875	—10	1875	2	1877	14	1875	27	1876
Port Huron, Mich	—14. 7	1883	—20	1875	— 8	1875	7	1875	26. 2	1882
Portland, Me	—11. 5	1882	— 7	1874, 1876	— 7	1872	14	1874	34	1873, 1876
Portland, Oreg	3	1875	7	1883	25. 5	1880	28	1875	33	1878
Prescott, Ariz	—17	1880	—11	1880	— 8	1876	18	1878	26	1877
Provincetown, Mass	3. 5	1883	13. 5	1883	7	1883	23	1882	34	1882
Red Bluff, Cal	19	1883	23	1883	28	1880	34. 9	1882	37	1879
Rio Grande City, Tex	19	1881	32	1880	33	1880	43	1881	49	1877
Rochester, N. Y	—12	1873	—12	1875	— 7	1872	11	1879	28	1880
Roseburg, Oreg	12	1883	9. 4	1883	19	1880	29	1878	33	1880
Sacramento, Cal	22	1883	22	1883	29	1880	30. 8	1883	30	1880
Saint Louis, Mo	—16	1875	— 3	1875	8	1873, 1876	22	1875	32	1875

at Signal Service stations for each month of the year, &c.—Continued.

June.		July.		August.		September.		October.		November.		December.		On record.	
°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Date.
49	1880	55	1876, 1882	50	1874	40	1875, 1879	28	1879	13	1880	— 5	1880	— 5	1880
36. 7	1883	46. 8	1883	42. 8	1883	34	1883	24	1883	8. 4	1883	3. 8	1883	—11	1882
57	1882	65	1881, 1883	63	1881, 1883	58	1882	47	1882	28	1881	17	1882	17	1882
33	1883	41	1882	30	1883	29	1882	23	1882	—16	1883	—14	1882, 1883	—35	1883
31	1881	40. 3	1883	37	1879	28	1883	18	1878	— 9	1875	—20	1880	—27	1875
54	1879	60	1882	59	1880	44	1875	29	1878	16	1877, 1880	3	1876, 1880	2	1875
40	1875, 1879, 1882	50	1875, 1876, 1880, 1883	42	1875	32	1876	22	1878	— 5	1880	—21	1872, 1880	—25	1875
61	1879	63. 8	1882	67	1879	53	1871	34	1873	27	1872, 1877, 1881	14	1880	14	1880
58	1877, 1879	60. 8	1882	61. 5	1879	51. 5	1876	33	1878	21	1882	8	1880	8	1880
32	1883	43	1883	38	1882	17	1883	15	1883	—15	1881	—34	1883	—42	1883
15	1878, 1879	27	1883	20	1876	11	1879	— 3	1881	—40	1875	—47	1876	—49	1872
49	1877	56. 3	1882	54. 7	1883	41	1875	28	1878	13	1872	— 2	1876	— 8	1877
42	1876, 1881	51	1879	46	1880	35	1879	24	1879	2	1875	— 6	1883	—14	1873
43	1876	51	1879	48	1874	37	1879	27. 2	1883	4	1875	— 7. 5	1883	—10	1882
65	1879	69. 8	1882	69	1879	58	1871	40	1873	31. 5	1881	20	1870, 1880	20	1870, 1879, 1880
47	1878, 1879,	57	1873 1882	53	1874	36	1872	31	1876	7	1875	— 6	1880	— 6	1875, 1880
53	1876	66	1876, 1877	58	1874	50. 5	1875	31	1876	20	1872	6	1880	6	1880
33	1876	45	1877, 1882	42	1876	21	1876	11	1878	—10	1877	—27	1879	—29	1883
36	1880	40	1882	41	1880, 1882	31	1877	20	1881	21	1882	8	1879	8	1879, 1883
42	1877	51	1873	40	1877	30	1873	15	1878	— 6	1875	—17	1879	—24. 9	1883
40. 5	1875	49	1873	49	1875	36	1879	28	1879	— 1	1875	—14	1875	—14	1875
55	1882	63	1882	64	1882	49	1883	41	1883	26. 5	1882	23	1882	7	1883
64	1881	64. 2	1882	69	1881	57. 3	1882	45	1880	28. 1	1881	17	1880	17	1880
49	1873, 1878, 1879	56	1883	53	1872	43	1879	31	1873 1876	8	1875	— 5	1880	— 5	1875, 1880
2	1882	18	1876	15	1882	6	1876	—17	1878	—36	1880	—37	1878	—37	1878, 1875, 1883
39	1879	52	1874	49	1876	35	1879	28	1873, 1878, 1876	4	1880	— 9	1880	—12	1875
37	1877	48. 9	1883	46	1875, 1879	31	1879	24	1879	— 6	1880	—14	1880	—20	1875
43	1875	51	1876, 1882	48	1774	37	1875	28	1876, 1879	— 6	1875	—17	1872	—17	1872
42	1880	46	1875, 1880	43	1876	39	1878, 1877, 1882	31	1877	22. 5	1880	3	1879	3	1875, 1879
32	1880	42	1879	38	1876	29	1880	18	1880	— 1	1880	—18	1879	—18	1879
45. 5	1882	52	1883	53	1883	45. 5	1883	34. 1	1883	22. 8	1883	— 0. 4	1883	— 0. 4	1883
47	1880	53	1881	52	1881	50	1878, 1881, 1882	32	1881	26	1880	25	1878, 1879, 1882, 1883	19	1883
62	1877, 1883	62	1877, 1883	68	1879, 1883	53	1883	43	1878, 1879	30	1880	24	1880	19	1881
36	1879	48	1873	47	1882	34	1878, 1879	19	1879	1	1875	—11	1871	—12	1873, 1875
37. 5	1880	40	1879	40. 5	1882	34. 6	1881	22. 5	1881	17. 5	1880	7	1879	7	1879
48	1881	51	1879	49	1880	44. 4	1882	36. 4	1881	27	1880	23. 5	1878	22	1883
48	1877	57	1876	55	1875, 1879, 1880	40	1875	25	1878	5	1872	—17	1872	—17	1872

Table showing the lowest temperatures (in degrees Fahrenheit) recorded

Stations.	January.		February.		March.		April.		May.	
	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.
Saint Michael's, Fort, Alaska	—47	1878	—52	1878	—39	1878	—27	1880	—2	1876, 1879
Saint Paul, Minn	—31	1883	—32	1875	—22.5	1873	7	1874	24	1875
Saint Vincent, Minn	—44	1881, 1883	—38	1883	—31	1883	—14	1881	21	1882
Salt Lake City, Utah	—20	1883	Zero.	1883	4	1874	19	1875	32	1880
San Diego, Cal	32	1880	35	1880	38	1880	39	1875	45.4	1883
Sandusky, Ohio	—16.5	1879	Zero.	1881	10	1883	14	1881	34	1880
Sandy Hook, N. J	— 3	1879	Zero.	1881	10	1883	12	1874	33	1874
Sanford, Fla	46	1883	50	1883	48	1883	53.4	1883	51	1883
San Francisco, Cal	36	1876, 1883	35	1883	39	1880	40	1875	45	1876, 1879, 1880, 1882
Savannah, Ga	18	1873	29	1875, 1876, 1881	27	1873	33	1881	48	1877
Shaw, Fort, Mont	—33	1883	—37	1883	—18	1882	— 4	1880	21	1881
Shreveport, La	6	1879	22	1875, 1881	26	1876	32	1881	47	1876, 1877
Sill, Fort, Ind. Ter	— 9	1879	— 3.5	1883	10	1880	26	1881	42.5	1883
Sitka, Alaska	8.5	1882	4	1882	5.5	1882	25.5	1882	31	1881
Smithville, N. C	16	1879	18	1881	21	1876	29	1881	41	1878
Spokane Falls, Wash. T	—27.7	1883	—25.1	1883	7	1882	26	1881	29	1881
Springfield, Ill	—10	1883	— 2.4	1883	13.5	1883	19	1881	33.9	1883
Stockton, Fort, Tex	2	1881	8	1883	15	1880	24.2	1882	41.5	1882
Thatcher's Island, Mass	— 8	1882	— 4	1880, 1881	6.5	1883	18	1881	31	1880
Thomas, Camp, Ariz	12.8	1883	16	1881	23	1881	24.3	1883	37.8	1883
Toledo, Ohio	—14	1873	—12	1875	— 3	1873	12	1875	30	1876
Unalashka, Alaska	19	1880, 1883	7	1879	5	1883	18	1883	24	1882
Verde, Fort, Ariz	1.4	1883	10	1880	11	1881	27	1883	37	1880
Vicksburg, Miss	10	1875	21	1875	27	1876	31	1881	46	1877
Washington City	—14	1881	— 1.5	1875	4	1873	22.5	1875	33.5	1876
West Las Animas, Colo	—21.5	1883	—22.5	1883	6	1882	18	1882	30.5	1883
Wilmington, N. C	15	1879	15	1875	20	1873	28	1875	38	1876
Yankton, Dak	—32	1881	—23	1881	—16	1876, 1880	— 3	1881	24	1875
Yuma, Ariz	22.5	1883	25	1880	31	1881	40	1878	49	1883

at Signal Service stations for each month of the year, &c.—Continued.

June.		July.		August.		September.		October.		November.		December.		Lowest on record.	
°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Year.	°	Date.
22	1881	33	1881	......	......	......	......	......	......	......	......	......	......	......	......
39	1876, 1877	46	1878	43	1875	30	1873	15	1878	—24.5	1875	—39	1879	—39	1879
29	1883	40	1881, 1883	36	1881	17	1883	11	1883	—22	1880, 1883	—42	1880	—44	1881, 1883
37	1875	45	1880	44	1880	36	1881	22	1878	8	1880	—10	1879	—20	1883
51	1878	54	1880	54	1879	49.5	1883	44	1878	38	1881	32	1879	32	1879, 1880
47	1879, 1882	56	1880	48.5	1882	42	1879	30	1878, 1880	Zero.	1880	—13	1880	—16.5	1879
49	1874	50	1880	55	1874	46	1875	33	1876	8	1875	— 5	1880	— 5.6	1880
71	1883	70	1883	69	1883	66.5	1883	62	1883	50.5	1883	36	1883	36	1883
48	1871, 1874	49	1874, 1881	59	1875, 1879, 1882	50	1874, 1880, 1881, 1882	45	1881	41	1880	34	1879	34	1879
59	1877	66	1876	63	1879	54	1871	37	1873	22	1872	15	1880	15	1880
36	1883	37	1882	33	1883	23.5	1880	— 2	1881	—26.5	1880	—42	1880	—42	1880
55	1877	64	1877, 1880, 1882	58	1880	47	1881	31	1873	18	1880	10	1880	6	1879
47	1879	56	1877, 1880	53	1880	44	1878	25	1878	— 4	1880	2	1879, 1880	— 9	1879
38	1882, 1883	43	1881 1882	42.5	1883	54.5	1882	26	1883	5	1883	9	1882	4	1882
53	1878, 1879	61	1881	58	1883	49	1879, 1880	35	1876	28	1879, 1881	10	1880	10	1880
39	1882	43	1881	38	1881, 1882	31	1881	18	1881	8	1881	2.2	1882	—27.7	1883
48.7	1882	54	1883	52	1880	38	1879	26	1880	6	1880	—14	1880	—14.0	1880
46	1877	50	1877	51	1882	40	1883	29	1877	12	1880	6	1880	2	1881
40.1	1881	50	1870	45.5	1883	39.5	1883	28	1870	9	1880	— 7	1880	— 8	1882
45	1880	52	1880	49	1880	48	1880	26	1880	16	1880	18	1880	12.8	1883
43	1873, 1875, 1878, 1879	50	1883	47	1879	36	1871	25	1876	5	1880	—15	1872	—15	1872
34	1883	37	1881	36	1882	33	1883	24	1879	19	1883	12	1882	5	1883
45	1880	48	1879	51	1880	34	1881	27.3	1881	8	1880	6	1879	1.4	1883
53	1879	62	1881	63	1879	48	1871	34	1873	23	1877, 1880	12	1880	10	1875
46.5	1873	57	1871	50	1874	38	1879	26	1873	12.5	1880	—13	1880	—14	1881
40.5	1883	52	1882	49.5	1882	35	1883	19	1883	— 1	1882	— 6.5	1882	—22.5	1883
52	1878	62	1881	56	1874	47	1879	32	1876	20	1872	10	1880	10	1880
38	1876, 1877, 1879	44	1877	45	1875	26	1876	9	1878	—15	1875	—34	1879	—34	1879
56	1878	61	1879	64	1879	50	1882	41.4	1883	31	1880	27	1879	22.5	1883

APPENDIX 40.

Table showing the means of the daily maximum and minimum temperatures (in degrees Fah
ending June

[The means are obtained by dividing the sum of the daily readings of the maximum

Stations.	1883.									
	July.		August.		September.		October.		November.	
	Mean.		Mean.		Mean.		Mean.		Mean.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	81.0	64.1	78.1	60.6	69.2	52.2	58.1	43.1	50.7	37.3
Alpena, Mich	71.5	54.8	71.9	51.0	61.5	43.9	49.7	35.1	40.6	26.8
Apache, Fort, Ariz	87.4	57.8	86.3	56.7	84.6	47.3	68.7	36.2	61.9	23.5
Assinaboine, Fort, Mont	81.3	52.1	79.6	54.3	67.9	42.2	47.7	31.1	37.0	15.4
Atlanta, Ga	89.4	70.8	85.0	67.4	79.9	62.7	74.4	57.7	61.8	45.4
Atlantic City, N. J	80.0	65.6	76.6	63.3	71.1	57.9	60.9	48.8	52.8	38.4
Augusta, Ga	93.0	74.8	89.0	71.8	83.5	65.5	77.3	60.6	67.0	48.6
Baltimore, Md	85.4	68.5	80.7	65.0	72.2	58.0	63.8	51.4	54.9	41.7
Barnegat City, N. J	79.4	66.3	75.4	64.6	69.8	59.0	60.0	50.1	53.4	40.3
Bennett, Fort, Dak	84.5	58.9	85.1	57.6	74.1	46.6	54.0	33.8	47.3	16.0
Benton, Fort, Mont	80.7	51.5	81.6	53.6	70.6	42.6	51.2	32.0	40.8	18.8
Bismarck, Dak	79.5	55.8	78.6	54.8	69.4	43.7	48.3	33.4	38.7	15.0
Block Island, R. I	75.5	63.4	72.6	61.3	66.5	55.0	57.6	46.2	53.6	39.6
Boisé City, Idaho	[2]92.0	[2]52.6	89.7	57.5	81.3	40.0	56.3	35.4	52.3	28.8
Boston, Mass	82.2	61.2	78.0	58.6	68.4	51.1	56.2	39.2	51.8	33.9
Brownsville, Tex	93.9	73.0	96.4	75.1	87.8	70.0	87.9	71.6	77.7	63.1
Buffalo, N. Y	72.8	60.7	72.8	58.8	66.4	49.3	55.3	41.4	51.5	35.4
Buford, Fort, Dak	83.4	52.1	81.6	53.2	70.9	40.0	49.3	30.8	35.1	9.7
Cairo, Ill	85.3	70.2	82.6	67.2	77.1	59.6	67.2	53.7	58.5	42.4
Canby, Fort, Wash	......	......	......	(3)	66.5	55.1	55.2	46.9	50.0	43.7
Cape Henry, Va	85.8	69.9	82.0	69.2	76.4	65.0	68.8	57.3	61.3	44.9
Cape May, N. J	79.9	68.4	78.4	65.7	72.4	59.2	63.3	49.8	54.6	41.0
Cape Mendocino, Cal	58.6	47.5	60.3	49.2	67.6	52.9	58.1	48.0	55.9	45.6
Cedar Keys, Fla	89.8	77.9	90.5	77.2	87.0	72.6	82.0	70.2	72.8	58.1
Charleston, S. C	92.1	76.0	87.8	73.7	81.4	68.5	76.0	63.5	66.8	52.1
Charlotte, N. C	89.0	71.3	84.9	68.9	76.9	61.8	69.7	55.1	62.4	43.7
Chattanooga, Tenn	90.4	69.5	84.6	67.0	81.1	62.2	72.1	58.0	61.0	43.1
Cheyenne, Wyo	81.0	51.9	81.6	51.5	72.8	43.4	51.3	30.4	51.0	27.2
Chicago, Ill	78.9	62.4	74.0	61.7	66.6	54.5	57.8	46.8	49.9	34.4
Chincoteague, Va	82.2	67.5	78.4	66.1	73.0	61.6	64.9	53.0	56.7	41.8
Cincinnati, Ohio	85.0	68.9	81.2	65.4	75.9	58.5	65.3	53.2	56.3	41.3
Cleveland, Ohio	78.1	62.6	75.3	59.0	68.2	51.5	59.5	45.6	51.7	35.7
Columbus, Ohio	83.6	64.6	80.1	60.2	74.0	54.0	62.8	48.3	52.5	36.9
Concho, Fort, Tex	94.9	71.2	98.0	70.5	86.0	62.1	76.1	57.8	67.6	44.0
Custer, Fort, Mont	(1)	(1)	88.7	53.3	80.9	43.6	56.9	31.8	46.5	18.5
Davenport, Iowa	82.0	62.3	78.1	58.3	71.2	48.2	56.9	40.5	50.5	29.8
Davis, Fort, Tex	88.9	62.3	89.9	60.7	81.4	54.4	76.5	50.6	63.3	38.9
Dayton, Wash. T	87.3	53.6	85.1	53.2	77.5	45.2	57.8	34.7	51.6	33.3
Deadwood, Dak	73.1	53.5	75.4	54.3	63.8	45.5	47.4	33.9	44.5	23.0
Delaware Breakwater, Del	81.0	68.4	78.1	66.5	71.7	61.7	63.6	53.6	53.3	42.3
Denver, Colo	82.6	58.7	83.6	58.8	74.7	50.2	57.6	36.8	56.1	31.1
Des Moines, Iowa	85.6	65.2	80.9	60.8	70.7	50.2	56.6	41.6	48.9	28.2
Detroit, Mich	80.3	61.3	77.1	57.0	68.2	50.2	58.0	44.6	51.7	36.9
Dodge City, Kans	88.4	66.4	82.5	63.4	76.4	54.0	59.2	42.0	55.8	29.1
Dubuque, Iowa	82.6	62.5	78.6	58.0	69.8	48.1	55.9	42.7	47.6	30.2
Duluth, Minn	74.2	57.1	69.6	56.0	62.4	48.1	40.8	38.6	37.2	20.8
Eastport, Me	67.8	52.6	70.9	53.8	63.0	48.3	50.3	39.2	45.0	32.5
Elliott, Fort, Tex	88.9	64.8	86.8	64.8	(1)	55.8	62.8	46.3	61.7	33.4
El Paso, Tex	99.8	67.5	96.0	67.8	86.5	58.4	76.4	49.2	65.5	37.9
Erie, Pa	77.2	63.4	75.6	60.7	67.5	52.3	59.4	46.2	50.2	37.8
Escanaba, Mich	71.7	54.5	71.3	51.5	62.2	43.6	50.8	36.9	40.8	24.8
Fort Smith, Ark	94.4	71.1	92.4	68.7	86.8	59.6	74.9	56.9	66.2	43.4
Galveston, Tex	89.8	79.5	90.9	79.7	84.8	74.8	82.0	72.7	70.5	59.9
Grand Haven, Mich	72.9	60.9	71.0	57.0	64.3	49.4	53.3	41.2	47.9	33.9
Grant, Fort, Ariz	87.4	65.6	85.5	64.9	82.9	61.8	69.9	48.7	61.1	40.4
Hatteras, N. C	85.1	73.5	82.3	71.9	78.0	68.9	70.3	60.1	68.1	49.7

[1] Sixteen days only.

[3] Observations began September 1, 1883.

APPENDIX 40.

renheit) at stations of the Signal Service, United States Army, for each month of the year 30, 1884.

and minimum self-registering thermometers by the number of days in the month.]

1883.		1884.											
December.		January.		February.		March.		April.		May.		June.	
Mean.		Mean.		Mean.		Mean.		Mean.		Mean.		Mean.	
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
°	°	°	°	°	°	°	°	°	°	°	°	°	°
37.4	23.6	31.1	14.8	38.9	23.6	41.6	30.1	54.2	40.3	66.9	50.8	81.3	61.3
30.4	17.7	20.3	5.0	22.6	7.2	32.3	14.8	45.4	30.5	57.8	40.7	70.9	52.9
52.2	27.1	51.1	21.0	52.9	28.3	56.4	31.3	64.9	32.9	75.8	39.5	85.6	45.7
31.0	14.0	22.0	1.8	12.2	− 6.2	36.4	11.2	54.0	29.4	71.1	42.8	78.0	53.8
56.8	39.2	44.8	26.8	60.3	43.1	62.3	46.4	66.5	50.2	79.1	62.3	78.1	64.0
43.4	29.8	35.8	21.7	43.1	31.2	45.0	32.4	54.2	40.0	66.7	51.5	72.4	59.8
63.1	44.0	52.8	34.0	67.0	46.4	68.8	50.5	71.7	52.4	84.0	65.0	82.3	67.2
44.9	32.7	39.0	25.0	48.6	34.7	50.2	37.4	50.8	43.2	72.8	56.9	81.8	64.4
44.3	30.9	36.0	22.0	44.6	34.0	45.9	(1)	53.8	41.5	66.6	51.6	72.8	58.9
33.1	7.8	24.8	− 1.8	17.2	− 6.2	39.4	17.0	54.7	31.9	71.4	44.7	85.6	59.7
39.0	17.3	27.2	6.8	19.6	− 1.9	44.6	25.8	56.0	30.4	73.7	40.2	81.3	51.9
25.0	4.5	14.5	− 7.6	8.9	− 9.8	29.9	10.5	47.6	30.2	67.1	44.1	81.2	54.8
43.4	28.1	37.1	28.2	42.6	28.0	42.7	30.3	48.9	38.0	59.9	47.0	68.9	55.6
(1)	(1)	42.4	15.8	30.5	22.0	52.3	36.3	62.1	42.6	72.7	50.2	79.3	57.0
37.3	20.9	32.0	16.3	39.1	23.1	42.2	26.2	50.8	36.7	64.2	45.6	77.9	56.6
60.5	55.8	63.8	44.2	75.6	56.7	79.7	62.0	82.8	64.1	87.0	69.8	89.9	73.0
41.5	25.2	25.2	10.6	36.3	18.4	36.8	22.4	47.9	32.7	60.8	44.7	75.4	58.0
20.6	− 1.2	17.1	− 6.6	9.4	−11.2	31.6	10.4	52.4	29.2	72.2	43.5	86.3	56.6
51.2	33.9	35.4	19.2	49.5	33.8	54.5	41.0	63.6	49.3	74.1	59.0	80.9	67.4
48.3	40.2	46.6	38.2	44.6	38.0	50.1	39.9	56.8	45.9	59.5	48.5	60.8	51.3
52.7	37.9	44.6	28.5	55.6	38.9	54.9	39.2	59.5	44.0	73.5	58.2	79.2	64.6
45.4	33.4	38.0	24.4	45.4	32.7	45.5	34.0	54.1	41.8	66.2	53.0	74.5	60.9
55.3	43.6	53.0	43.5	51.6	40.3	58.7	41.7	54.2	43.8	58.2	47.2	60.4	49.5
68.9	55.5	59.3	44.1	69.8	57.2	73.1	60.8	75.0	62.7	82.7	70.5	84.7	71.2
63.8	49.0	54.9	38.6	67.0	52.0	67.7	53.7	70.8	56.2	82.1	69.0	81.6	69.7
55.0	39.2	46.8	30.5	60.7	42.6	62.6	45.2	66.7	47.8	78.9	60.2	78.8	62.9
54.4	37.4	43.5	26.0	57.1	41.4	62.0	44.9	66.6	40.0	79.5	60.0	80.9	64.9
40.5	18.4	33.8	12.8	33.6	13.6	41.8	21.2	49.4	26.9	64.7	38.6	78.2	49.1
38.5	23.4	20.5	11.1	35.4	20.3	41.1	27.8	50.7	37.9	63.9	48.3	71.1	57.8
47.5	33.6	39.2	25.2	48.9	35.0	49.0	35.3	55.5	41.6	70.0	53.5	77.8	61.5
46.9	32.0	33.9	18.8	50.0	33.8	51.8	39.1	60.0	46.2	71.7	57.3	82.1	67.9
39.9	26.2	27.0	10.5	39.7	22.9	40.9	26.0	51.6	36.5	66.4	49.2	70.5	59.3
41.9	27.0	27.7	12.2	44.9	29.5	46.4	32.0	58.2	40.5	70.9	52.5	82.6	63.2
59.9	37.7	50.3	27.0	62.2	35.9	73.8	44.0	75.5	46.8	81.7	50.0	91.8	64.8
37.8	14.7	26.6	2.8	16.9	− 2.8	36.8	15.9	57.3	31.3	70.5	41.5	82.6	53.7
40.2	10.1	27.2	5.3	35.6	13.1	44.7	22.8	59.4	36.4	69.9	48.2	79.0	58.0
59.2	34.6	52.5	26.5	63.6	38.3	67.7	41.9	68.5	42.8	79.6	49.7	87.4	60.3
40.2	26.0	37.0	23.1	33.7	14.9	50.6	31.7	64.6	39.8	75.1	45.3	78.8	52.1
35.8	18.5	31.0	11.5	24.9	4.8	35.6	19.6	43.9	29.0	50.5	40.7	73.7	51.8
45.5	33.9	37.5	23.1	46.9	34.0	47.0	34.6	53.0	42.1	66.6	53.7	73.5	61.5
42.3	23.5	48.4	20.0	40.8	19.4	49.5	28.9	53.5	32.4	65.5	43.0	78.6	54.3
36.8	17.4	25.7	5.8	30.8	10.8	43.0	25.7	58.2	39.6	71.5	50.2	81.2	61.3
40.6	26.0	27.9	13.1	38.7	22.0	42.4	27.5	55.3	37.2	68.3	49.5	80.5	60.4
46.2	24.3	37.4	11.4	39.4	16.6	55.0	29.3	62.5	37.1	71.8	48.2	82.2	60.7
35.6	18.6	21.0	4.5	31.0	12.4	40.5	23.7	59.1	37.7	71.0	49.8	80.2	59.0
23.8	7.1	15.8	− 6.3	15.1	− 2.5	30.0	11.3	41.7	31.2	58.8	40.8	65.3	50.4
31.7	15.1	24.9	10.1	31.9	17.1	34.2	21.9	45.0	34.6	53.6	39.6	66.3	48.4
52.2	27.4	44.0	19.3	49.6	24.3	60.4	33.0	67.2	39.6	75.5	50.9	84.5	62.1
50.3	34.5	55.8	26.5	64.4	39.5	70.6	41.5	78.4	46.0	91.0	54.5	100.7	64.8
39.3	26.6	27.9	12.4	39.7	22.4	41.8	25.9	50.2	35.2	66.8	48.3	77.8	59.8
26.8	13.3	18.8	− 0.3	19.2	− 0.2	32.0	9.3	44.8	28.3	57.8	41.3	71.7	53.5
55.7	35.4	42.4	20.4	53.2	33.0	64.7	42.6	70.1	48.9	81.1	58.9	89.5	67.0
66.6	55.3	56.9	40.0	66.5	54.6	70.4	59.6	72.7	62.3	80.8	70.3	87.1	76.2
36.9	23.7	27.7	12.6	32.1	17.3	39.8	24.8	51.6	36.4	62.1	47.3	75.2	59.0
55.0	37.2	52.3	32.7	54.5	38.3	58.2	40.0	65.5	44.7	75.7	54.8	87.1	65.7
56.4	42.8	50.1	34.5	61.4	46.3	59.8	46.2	60.6	48.8	73.5	61.7	77.6	66.9

[1] No record.

Table showing the means of the daily maximum and minimum temperatures

Stations.	1883.									
	July.		August.		September.		October.		November.	
	Mean.		Mean.		Mean.		Mean.		Mean.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°
Helena, Mont	77.5	55.5	77.5	56.3	69.3	48.2	45.8	33.7	41.7	24.2
Huron, Dak	81.5	58.2	79.3	56.5	69.1	45.8	58.4	35.4	45.6	18.8
Indianapolis, Ind	83.4	65.7	78.9	60.8	72.9	54.0	61.0	48.2	52.7	37.1
Indianola, Tex	90.4	77.3	92.4	77.0	83.8	72.4	83.1	71.4	72.8	59.9
Jacksonville, Fla	92.2	76.7	89.7	73.0	84.6	69.9	81.9	68.8	71.8	56.4
Keokuk, Iowa	84.4	66.4	79.8	61.8	73.8	52.1	58.5	44.6	52.0	34.1
Key West, Fla	91.8	79.0	91.2	78.9	88.7	78.1	84.4	75.9	79.0	72.4
Kitty Hawk, N. C	86.6	72.1	80.4	70.5	76.8	67.0	68.5	53.3	61.7	46.9
Knoxville, Tenn	87.0	66.9	84.9	64.8	81.9	59.6	72.5	55.2	53.6	38.7
La Crosse, Wis	79.0	64.2	75.7	59.6	64.9	50.1	53.1	40.7	45.4	27.8
Leavenworth, Kans	86.5	67.5	82.9	63.0	74.9	53.0	62.3	45.2	54.8	33.9
Lewiston, Idaho	90.9	59.1	87.1	57.6	76.0	47.7	57.9	39.5	57.6	35.5
Little Rock, Ark	90.8	71.2	87.7	69.1	82.2	60.0	74.7	59.9	64.9	47.6
Los Angeles, Cal	85.0	60.1	86.3	58.1	87.1	60.1	72.8	51.1	72.2	47.0
Louisville, Ky	86.6	68.5	82.8	64.6	79.0	58.4	67.8	52.7	57.9	41.5
Lynchburg, Va	87.9	68.2	84.6	64.0	75.4	58.6	66.3	52.1	58.4	39.7
Mackinaw City, Mich	70.4	54.4	70.3	53.9	60.9	40.9	50.0	38.3	42.2	29.0
Macon, Fort, N. C	85.2	74.1	83.4	71.8	77.1	68.0	69.8	60.1	62.2	48.8
Maginnis, Fort, Mont	73.5	54.4	77.2	49.6	69.0	41.2	47.5	27.4	39.1	17.0
Marquette, Mich	71.1	53.1	70.9	51.6	63.6	45.5	50.2	36.4	41.4	24.2
Memphis, Tenn	89.8	71.4	86.2	68.5	79.7	61.1	72.5	58.2	62.7	45.6
Milwaukee, Wis	76.4	59.8	73.8	58.5	64.3	50.2	53.7	42.8	46.6	30.4
Mobile, Ala	95.7	75.6	93.5	74.3	88.4	69.3	82.5	65.7	69.1	50.8
Montgomery, Ala	94.2	74.2	91.4	71.8	87.2	66.5	81.7	62.7	68.4	49.0
Moorhead, Minn	78.1	52.6	75.2	51.2	66.5	42.3	48.4	32.4	35.4	11.7
Mount Washington, N. H	51.9	40.3	49.2	37.8	46.0	31.3	35.6	22.4	27.4	11.4
Nashville, Tenn	86.4	68.9	83.5	66.7	79.6	60.1	70.8	56.4	60.8	41.9
New Haven, Conn	80.3	62.4	77.6	57.9	70.4	50.6	58.4	40.4	50.5	34.1
New London, Conn	79.2	62.0	76.0	58.3	69.2	51.0	58.2	40.7	52.0	34.6
New Orleans, La	90.3	77.0	89.9	76.8	86.0	72.5	81.5	68.4	70.5	55.6
New York City	81.4	66.3	79.1	63.5	70.8	56.2	61.2	46.6	52.1	37.8
Norfolk, Va	87.9	71.1	82.4	68.9	76.4	63.8	68.4	56.7	62.2	45.0
North Platte, Nebr	84.9	62.7	80.8	59.9	72.3	50.0	53.5	37.0	52.3	27.4
Olympia, Wash. T	76.1	48.2	71.3	55.1	67.0	48.1	57.3	42.9	50.2	41.9
Omaha, Nebr	86.1	67.0	81.0	63.1	70.3	52.8	57.3	42.3	51.5	28.2
Oswego, N. Y	78.7	60.3	75.5	59.8	67.1	50.8	43.4	38.7	50.1	35.1
Palestine, Tex	92.9	73.0	93.0	71.6	86.0	65.0	78.4	61.6	68.4	51.3
Pensacola, Fla	90.0	76.2	89.5	74.9	85.7	70.5	81.6	66.4	70.0	54.3
Philadelphia, Pa	84.3	68.4	79.7	65.1	72.5	57.8	62.7	49.2	54.5	41.8
Pike's Peak, Colo	47.0	34.0	46.2	33.9	36.7	24.6	22.2	10.4	18.6	7.9
Pittsburg, Pa	84.4	63.6	80.9	59.9	74.0	58.5	63.7	47.5	55.3	38.0
Poplar River, Mont	(1)	(1)	79.4	51.2	73.0	42.4	(1)	(1)	34.7	9.5
Port Huron, Mich	76.2	58.2	74.7	55.9	65.7	49.2	54.7	40.6	46.9	31.9
Portland, Me	79.0	61.7	76.5	60.0	67.2	51.1	55.8	40.4	48.9	34.4
Portland, Oreg	80.0	57.0	73.8	54.2	72.3	52.6	58.4	45.8	52.8	42.0
Prescott, Ariz	85.8	59.7	86.1	59.0	84.8	48.3	65.5	36.4	60.5	25.8
Provincetown, Mass	79.7	61.1	76.8	60.7	67.8	53.0	55.8	43.3	50.1	37.5
Red Bluff, Cal	98.4	67.3	94.0	62.7	89.6	61.4	68.3	49.3	61.7	41.4
Rio Grande City, Tex	97.2	75.0	101.5	72.9	92.9	66.7	90.8	70.9	78.3	60.6
Rochester, N. Y	......	......	......	......	......	(2)	55.5	41.2	48.4	33.9
Roseburg, Oreg	82.4	52.1	75.9	52.2	73.6	48.6	58.0	48.6	51.5	39.8
Sacramento, Cal	90.6	60.7	88.9	59.2	87.3	59.6	69.5	48.4	62.1	40.1
Saint Louis, Mo	87.2	68.3	84.1	65.2	78.6	57.4	63.2	50.0	59.3	41.6
Saint Michael's, Fort, Alaska	57.3	45.2	54.3	45.2	48.8	41.1	37.6	29.4	19.1	5.0
Saint Paul, Minn	81.5	62.0	77.7	58.4	67.5	47.9	53.6	38.9	43.7	22.5
Saint Vincent, Minn	74.6	50.2	72.4	50.1	65.1	40.2	45.7	29.4	28.6	8.6
Salt Lake City, Utah	87.3	65.4	86.7	66.8	79.3	60.1	54.3	38.7	47.1	31.8
San Diego, Cal	75.5	64.0	75.9	68.5	78.2	62.9	69.0	54.7	67.7	50.2
Sandusky, Ohio	(4)	(4)	77.1	62.8	69.2	55.8	59.5	47.3	52.5	37.2
Sandy Hook, N. J	83.3	67.6	79.5	64.8	70.7	58.3	60.3	49.5	52.1	40.0
Sanford, Fla	94.2	75.1	91.0	74.2	86.0	71.5	82.2	69.7	75.0	61.2
San Francisco, Cal	64.5	55.0	64.4	53.9	69.9	56.3	62.9	52.9	58.8	49.4
Savannah, Ga	92.1	77.3	88.0	74.0	82.1	68.1	77.3	63.4	68.3	51.0
Shaw, Fort, Mont	79.3	47.2	79.5	48.7	69.7	40.6	44.8	28.5	39.8	18.5
Shreveport, La	97.2	74.1	95.1	71.1	88.6	63.2	81.4	62.5	66.8	49.5
Sitka, Alaska	57.9	48.1	59.3	48.8	58.9	48.5	50.6	41.0	38.6	27.3
Smithville, N. C	87.2	75.2	84.6	71.7	78.4	66.7	72.7	59.8	63.5	48.4
Spokane Falls, Wash. T	85.0	58.4	83.2	52.5	72.4	44.2	53.7	35.0	46.6	32.0

[1] No record.

[2] Station closed April 1, 1884.

(in degrees Fahrenheit) at stations of the Signal Service, &c.—Continued.

1883.		1884.											
December.		January.		February.		March.		April.		May.		June.	
Mean.		Mean.		Mean.		Mean.		Mean.		Mean.		Mean.	
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
°	°	°	°	°	°	°	°	°	°	°	°	°	°
35.0	21.9	24.8	10.1	22.4	7.8	37.6	22.6	51.4	33.8	65.5	43.9	74.3	54.2
31.1	7.0	21.2	− 5.8	17.2	− 7.8	37.1	16.1	52.9	32.7	69.5	44.9	82.5	58.5
42.2	26.3	28.8	13.5	42.8	27.1	48.4	33.3	58.5	42.6	71.0	53.8	81.5	65.0
65.9	52.9	55.1	37.8	68.2	52.7	72.5	59.2	75.1	61.7	82.4	68.7	87.4	74.5
70.2	52.6	61.0	48.1	71.7	54.5	75.3	58.8	77.1	60.6	85.2	69.3	84.4	70.1
41.6	23.1	27.4	10.5	36.3	19.4	45.3	29.1	59.6	41.9	71.6	52.1	80.0	61.7
76.0	68.3	73.4	64.2	78.2	69.0	80.8	70.1	82.0	71.7	87.4	75.2	87.9	75.9
58.5	40.7	45.8	31.2	58.8	41.8	57.1	41.3	58.2	45.8	74.2	58.0	77.6	64.5
49.9	32.2	39.7	21.2	55.9	39.0	59.1	40.2	65.1	45.7	77.8	56.8	82.7	64.0
31.6	16.7	20.0	1.9	26.0	8.7	36.4	21.1	54.5	38.2	67.6	52.2	78.1	62.4
45.7	26.7	30.2	12.5	37.8	19.5	51.3	32.8	60.7	42.6	72.8	58.0	82.2	62.8
41.7	29.8	39.1	25.9	35.1	18.8	53.6	34.7	66.6	42.1	79.3	48.9	80.8	57.3
57.7	40.2	44.0	27.8	57.0	38.7	63.4	45.9	69.5	51.9	78.9	60.9	86.7	67.6
66.9	45.1	64.4	42.9	63.7	47.1	63.5	47.4	68.4	49.1	72.7	54.8	78.1	57.0
50.3	32.8	35.5	19.0	51.9	34.1	54.2	39.9	62.7	47.6	75.3	57.9	82.5	67.2
49.3	32.1	40.5	24.8	53.7	36.4	56.1	38.7	63.1	45.2	77.2	57.5	80.8	62.6
30.7	18.8	20.9	4.2	20.5	2.6	31.6	12.6	44.6	29.4	55.2	40.2	69.5	52.6
55.9	43.0	47.8	32.9	59.4	45.3	60.8	48.1	63.1	50.2	74.1	63.5	78.2	67.4
35.7	18.9	29.1	12.0	18.8	0.6	34.6	18.9	46.7	27.9	62.7	39.9	71.8	50.4
28.0	12.7	20.0	− 0.5	20.3	− 3.0	32.0	9.1	42.9	25.8	54.6	37.8	71.1	48.1
57.4	39.6	41.2	25.0	57.1	39.6	61.1	45.1	68.0	51.8	78.4	61.2	84.1	68.8
34.6	19.5	21.2	5.3	29.9	18.5	36.8	22.4	47.8	35.4	62.6	45.1	69.7	53.4
64.6	46.5	52.7	34.3	66.2	49.7	71.0	54.4	76.4	58.5	86.1	67.4	88.7	69.8
62.6	44.4	50.0	31.6	65.9	46.2	68.9	50.9	73.0	54.2	85.2	65.3	85.0	68.0
18.5	− 5.6	9.0	−16.1	7.6	−15.2	26.5	4.0	49.0	30.5	67.0	42.6	81.8	57.4
19.8	− 3.0	14.5	− 5.1	23.5	2.1	19.8	2.5	30.6	18.1	38.0	25.4	55.3	42.1
53.3	35.1	39.4	21.5	54.9	38.0	57.4	42.1	65.3	48.3	77.7	59.9	81.5	66.0
38.3	21.5	32.6	15.8	40.8	24.3	42.4	26.6	54.1	37.2	65.8	47.2	78.2	55.4
39.3	21.9	33.5	19.7	41.0	26.7	43.5	29.4	58.5	38.1	65.1	46.5	74.7	55.5
67.4	52.4	56.1	37.8	68.7	52.6	71.4	57.3	74.5	61.0	81.9	69.4	84.6	72.9
40.5	26.9	32.9	19.7	42.2	27.8	44.4	31.1	56.6	40.6	68.0	51.3	79.3	60.5
58.9	38.8	46.7	29.9	59.0	41.0	58.1	42.1	61.9	47.0	76.9	58.8	81.8	64.6
41.2	20.2	32.7	8.9	31.6	9.4	45.0	25.4	54.9	36.3	69.1	48.4	82.5	60.8
45.9	35.4	44.7	35.2	42.1	27.5	52.5	34.4	61.7	41.6	70.1	48.9	71.5	48.9
38.4	18.9	26.9	6.1	29.8	8.2	45.5	20.0	56.5	39.2	72.3	52.1	83.2	63.1
37.3	22.0	29.1	13.5	37.8	21.7	39.2	26.6	48.5	36.4	64.4	45.6	77.6	58.1
62.3	45.2	50.1	30.7	63.0	43.1	70.2	50.9	71.9	53.6	79.3	61.7	87.3	68.4
66.0	50.1	56.1	37.0	67.6	51.9	70.2	56.4	74.2	59.6	81.9	68.1	88.8	70.7
43.5	31.3	36.3	23.5	47.4	32.8	48.3	35.4	57.3	40.9	71.0	53.1	82.3	60.8
13.2	2.2	7.8	− 4.6	8.0	− 4.0	10.6	− 0.8	14.2	2.8	26.8	14.7	36.2	25.5
44.6	28.1	32.7	15.2	50.8	30.8	48.9	32.8	59.8	41.0	74.8	51.9	86.3	62.8
9.4	− 12.9	12.8	− 9.9	4.7	−14.9	(1)	(1)	49.7	29.0	70.0	41.6	82.9	34.8
34.5	19.6	23.7	7.6	32.0	16.4	36.5	22.0	47.0	33.8	68.3	45.4	76.0	57.0
34.6	19.2	29.5	13.3	37.1	21.6	41.2	25.7	52.5	38.3	61.7	45.9	76.1	57.8
49.0	36.8	46.2	33.3	44.4	29.4	55.6	37.8	65.1	45.8	73.6	48.7	74.9	58.7
51.4	30.1	50.5	25.8	49.8	28.9	52.1	31.9	58.4	34.4	69.6	42.1	80.3	47.6
39.6	26.1	34.8	22.7	40.3	27.5	41.1	28.7	(2)	(2)	....	....	....	....
54.7	35.9	54.8	38.2	55.4	36.8	60.8	43.1	66.6	47.2	79.9	56.8	80.9	58.5
70.2	51.6	65.8	40.5	80.2	55.5	85.6	62.4	88.7	65.0	98.5	70.4	99.9	74.0
35.0	21.4	25.1	10.6	35.5	18.5	37.6	23.8	48.2	33.9	63.7	45.6	77.2	57.1
45.8	35.1	45.3	34.0	47.4	30.3	55.6	37.4	61.2	43.6	71.8	46.6	72.5	51.9
58.3	36.4	55.9	37.9	56.1	38.9	60.7	46.7	65.8	49.5	75.4	55.7	76.3	57.6
49.8	31.8	35.1	17.3	46.1	27.4	51.8	36.6	62.6	46.5	73.8	56.8	81.9	66.4
10.6	− 2.5	11.9	− 3.5	19.8	4.4	20.0	6.8	29.0	16.7	40.7	28.5	54.1	40.5
28.4	11.0	20.8	− 0.3	24.4	1.6	37.7	18.4	56.0	37.6	69.9	48.9	80.6	60.4
11.3	− 9.2	3.9	−20.8	2.8	−19.7	2 .7	− 0.9	46.3	27.1	67.3	40.0	79.5	54.5
39.5	25.4	36.0	20.8	38.9	22.5	48.6	33.1	56.7	39.3	67.7	48.1	80.4	57.8
65.7	49.0	64.5	45.6	62.9	48.6	62.9	50.4	64.4	51.1	67.5	56.1	72.1	58.4
39.8	27.5	26.9	12.9	39.0	24.4	41.6	28.7	52.1	39.3	68.8	51.3	77.9	62.7
41.0	29.4	33.6	21.2	41.7	29.0	44.0	32.2	54.0	41.2	66.8	52.0	75.7	61.4
73.6	53.8	66.3	46.4	75.6	57.0	79.0	60.0	80.9	60.7	88.3	67.3	87.2	68.7
55.5	46.2	54.7	46.6	55.9	45.6	59.2	49.8	61.2	50.7	65.3	58.4	65.2	55.3
65.2	49.2	55.2	38.3	67.4	50.4	69.4	54.3	73.2	57.3	84.1	68.3	82.2	69.2
33.8	19.3	30.1	11.5	19.0	− 0.1	39.8	18.5	53.4	30.4	67.9	39.6	76.6	51.5
60.6	43.9	48.5	30.3	63.0	44.4	70.1	50.1	74.6	53.8	82.3	63.7	91.6	70.3
41.6	30.5	43.8	34.2	37.8	25.8	42.5	33.3	51.7	37.7	51.9	40.8	57.9	46.4
59.4	43.8	51.3	34.5	62.2	48.0	62.9	49.9	66.6	51.5	77.7	64.4	80.5	66.6
35.6	22.4	32.6	17.5	30.2	12.7	46.4	27.8	62.2	39.0	74.5	46.0	78.7	58.9

[3] Observations recommenced October 10, 1883.

[4] Observations recommenced July 20, 1883.

Table showing the means of the daily maximum

Stations.	1883.									
	July.		August.		September					
	Mean.		Mean.		Mean.					
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°
Springfield, Ill	84.5	65.7	79.9	61.4	74.7	52.2	60.0	[illegible]	54.0	35.3
Stockton, Fort, Tex	92.4	65.8	94.2	65.0	82.5	57.1	77.1	53.3	67.2	40.2
Tatoosh Island, Wash	......	......	......	......	......	(1)	54.0	45.0	48.1	42.1
Thomas, Camp, Ariz	96.9	69.7	96.8	69.3	91.5	59.7	77.2	42.3	66.2	31.8
Toledo, Ohio	80.8	63.8	76.6	59.3	68.5	52.0	58.5	44.7	[illegible]	36.4
Unalashka, Alaska	56.8	43.7	57.0	44.5	50.6	41.1	49.3	33.0	41.2	30.5
Vicksburg, Miss	92.9	73.9	92.5	71.0	86.8	64.6	80.6	63.0	67.8	48.8
Washington City	87.7	67.2	82.4	62.7	74.8	56.2	65.5	49.3	56.2	39.4
West Las Animas, Colo	93.3	61.7	89.7	60.5	81.1	49.1	65.5	36.0	61.2	21.7
Wilmington, N.C	89.8	74.2	86.5	71.6	79.4	65.9	74.2	59.2	66.6	48.4
Yankton, Dak	83.1	63.3	80.5	61.6	70.8	49.5	55.1	38.3	48.6	21.8
Yuma, Ariz	106.8	80.8	105.6	79.1	101.9	71.6	80.8	55.0	74.9	49.1

[1] Observations began October 1, 1883.

(*in degrees Fahrenheit*) *at stations of the Signal Service, &c.*—Continued.

1883.		1884.											
December.		January.		February.		March.		April.		May.		June.	
Mean.		Mean.		Mean.		Mean.		Mean.		Mean.		Mean.	
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
°	°	°	°	°	°	°	°	°	°	°	°	°	°
44.5	28.1	29.6	12.8	41.2	24.4	48.0	32.4	59.8	44.0	71.0	52.7	80.1	62.8
62.6	35.7	54.1	26.5	67.2	39.4	74.4	45.8	76.2	46.4	84.9	55.7	92.2	65.9
46.5	40.2	44.6	39.4	40.4	33.7	47.9	38.8	55.0	46.0	57.2	47.4	59.3	50.1
57.4	34.0	54.7	27.8	59.8	35.8	65.1	39.3	72.4	41.2	84.3	49.3	95.5	57.2
40.1	25.9	28.4	11.7	38.0	23.9	42.9	28.2	53.4	38.3	68.7	51.0	78.6	62.2
34.6	25.8	38.0	28.8	39.9	33.0	39.4	28.4	48.4	30.4	45.7	33.8	53.0	40.4
63.1	45.8	49.7	31.8	65.6	47.0	67.8	51.6	73.6	54.8	81.4	63.0	87.4	68.5
44.5	29.5	37.2	22.6	49.2	32.9	49.8	34.9	60.7	42.6	75.2	54.6	84.0	62.6
48.9	20.5	40.9	8.8	41.1	11.4	56.8	24.7	62.2	33.0	72.7	43.5	84.2	55.4
62.5	43.7	53.6	35.6	66.6	48.2	67.1	50.5	69.6	52.0	80.2	63.9	81.8	65.9
35.4	14.2	25.6	3.0	22.1	1.4	39.9	21.6	52.9	35.9	70.8	49.6	83.2	61.3
(2)	(2)	65.8	43.8	67.1	48.8	72.4	51.0	82.5	53.7	91.1	61.6	98.2	67.7

[2] No record.

APPENDIX 41.

Table of monthly and annual mean temperatures (in degrees Fahrenheit) reported by voluntary observers of the Signal Service, United States Army, for the year ending June 30, 1884.

[The daily means are generally obtained by dividing the sum of the 7 a. m. by 2, and twice the 9 p. m. observations by four; the monthly means by dividing the sum of the daily means by the number of days in the month.]

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Acootink, Va.	78.3	73.9	67.4	59.6	48.9	38.8	31.8	43.8	44.9	58.6	66.4	75.1	56.8
Aiken, S. C	(1)	(1)	(1)	(1)	57.4	51.9	40.3	56.8	58.1	60.7	75.7	(1)	
Albany, Oreg	66.6	63.8	60.4	49.8	46.4	38.0	38.9	37.0	45.0	52.7	59.7	61.5	51.6
Alexandria, Dak	70.0	68.8	56.9	42.8	31.3	17.0	7.5	4.9	(1)	(1)	(1)	(1)	
Allison, Kans	(1)	(1)	(1)	(1)	(1)	(1)	20.4	20.8	35.3	44.5	57.1	71.0	
Ames, Iowa	76.2	69.6	(1)	44.1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
Amherst, Mass	68.7	65.7	58.7	44.0	39.6	27.0	21.6	30.5	31.0	45.5	56.6	(1)	
Andersonville, Ga	(1)	(1)	(1)	(1)	(1)	(1)	41.7	(1)	60.0	64.0	74.4	(1)	
Andersonville, Tenn	74.0	71.0	67.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
Anna, Ill	76.2	75.1	68.6	61.2	49.3	39.7	25.6	38.7	45.7	54.7	65.5	73.7	56.2
Ann Arbor, Mich	(1)	65.8	58.7	47.8	39.7	27.5	(1)	(1)	(1)	(1)	(1)	(1)	
Archer, Fla	82.8	81.4	82.4	(1)	(1)	(1)	52.0	65.6	68.2	69.0	80.3	79.1	
Ardenia (Phillipstown), N. Y	72.0	69.0	62.0	51.0	44.0	29.0	(1)	(1)	(1)	(1)	(1)	78.5	
Ashwood, Tenn	79.0	78.5	70.3	64.6	52.0	42.0	29.0	46.4	50.5	58.0	70.0	70.0	59.7
Atchison, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	25.0	39.8	50.2	62.5	71.0	
Athens, Ga	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	57.4	72.4	70.6	
Anburn, Ala	(1)	(1)	(1)	67.9	54.8	50.2	38.4	54.0	(1)	(1)	(1)	(1)	
Auburn, N. Y	(1)	(1)	(1)	(1)	(1)	27.5	17.5	28.0	30.0	43.3	58.5	69.0	
Austin, Tenn	77.3	75.3	70.2	65.9	49.7	40.8	28.2	47.0	49.0	55.7	68.6	(1)	
Austin, Tex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	73.9	82.7	
Bainbridge Island, Wash	62.5	62.5	56.0	46.3	44.3	41.3	39.0	34.0	43.0	51.3	52.0	60.0	49.4
Beech Grove, Tenn	73.0	71.0	66.0	62.0	50.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
Beloit, Wis	70.5	66.5	57.1	46.1	35.6	22.7	10.2	20.1	29.4	44.7	57.9	66.5	43.9
Benton, Tenn	80.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
Blooming Grove, Pa	(1)	(1)	(1)	(1)	(1)	(1)	20.9	(1)	(1)	(1)	57.6	72.1	
Bolivar, Tenn	77.0	74.0	67.0	63.0	50.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
Bordentown, N. J	(1)	70.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	
Bowling Green, Ky	77.1	(1)	67.3	(1)	(1)	41.2	26.4	(1)	44.8	(1)	(1)	(1)	
Brevard N. C	(1)	(1)	(1)	(1)	(1)	(1)	34.9	46.5	48.6	53.5	65.0	68.1	

Brownsville, Tenn	79.0	76.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Bunker Hill, Ill	74.6	70.5	(1)	(1)	(1)	31.3	18.8	31.0	39.8	50.6	61.9	70.9	....
Burlington, Vt	(1)	(1)	(1)	(1)	39.4	28.2	18.5	25.0	29.9	43.8	55.8	70.7	....
Canal Dover Ohio	73.0	(1)	(1)	(1)	45.0	36.5	22.3	36.5	40.0	48.0	(1)	(1)	....
Carson City, Nev	73.2	69.5	62.8	44.0	36.6	32.5	30.2	26.0	38.8	46.1	57.5	61.2	48.2
Careyville, Tenn	78.0	60.0	(1)	(1)	47.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Catawissa, Pa	69.2	67.8	58.0	52.7	44.0	30.0	31.2	30.8	32.2	50.0	62.0	66.5	49.4
Cedar Rapids, Iowa	72.3	(1)	(1)	46.0	34.8	22.3	8.9	17.6	29.4	43.5	57.7	67.8	....
Chambersburg, Pa	71.7	68.2	20.5	52.0	42.4	32.1	28.1	32.8	38.9	47.1	58.6	(1)	....
Chapel Hill, N. C	79.2	76.4	68.6	60.8	51.8	44.8	36.0	49.6	51.4	56.5	69.2	72.5	59.7
Charlestown, Mass	72.7	72.1	61.0	49.1	44.1	29.4	24.6	32.3	(1)	(1)	(1)	(1)	....
Charlotte, Vt	68.0	(1)	(1)	43.0	37.5	24.2	11.0	22.5	26.5	42.5	56.8	68.0	....
Chuckaluck, Tenn	(1)	(1)	67.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Cincinnati (G. W. H.), Ohio	77.3	72.7	67.3	58.1	46.9	36.7	27.0	39.0	43.6	52.4	67.4	75.0	55.3
Clarksville, Tex	(1)	(1)	(1)	(1)	(1)	(1)	34.9	47.7	56.8	60.5	69.0	76.8	....
Clay Centre, Kans	(1)	(1)	69.1	51.5	41.7	32.5	21.3	24.9	(1)	(1)	(1)	78.6	....
Clear Creek, Nebr	(1)	72.0	(1)	47.8	36.8	25.9	14.6	17.9	33.7	(1)	61.6	73.3	....
Cleburne, Tex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	47.0	57.2	60.0	68.3	75.2	....
Cleveland, Ohio	70.1	66.5	59.0	51.8	43.0	33.0	20.1	30.7	34.4	44.6	58.5	69.0	48.4
Clinton, Ind	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	60.4	74.4	....
College City, Cal	(1)	(1)	(1)	(1)	(1)	(1)	47.2	48.9	55.0	62.9	71.9	78.4	....
College Hill, Ohio	72.6	74.0	59.5	(1)	(1)	36.7	23.0	38.4	42.3	52.3	64.0	74.8	....
Collinsville, Ill	(1)	71.1	64.9	(1)	45.4	36.7	21.7	32.9	39.9	51.8	62.5	72.3	....
Conception, Mo	(1)	(1)	(1)	(1)	39.4	30.1	12.7	22.3	35.6	48.1	58.0	71.8	....
Contoocook, N. H	(1)	66.4	(1)	(1)	39.9	25.6	(1)	(1)	31.2	(1)	56.1	(1)	....
Conway, Kans	(1)	76.1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Cooperstown, N. Y	68.0	64.8	56.3	45.0	37.0	25.5	17.7	27.5	23.3	40.8	54.0	65.7	44.2
Cornish, Me	(1)	(1)	(1)	(1)	(1)	21.7	16.1	24.5	(1)	(1)	(1)	68.3	....
Covington, Tenn	77.0	(1)	67.0	63.0	50.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Cresco, Iowa	69.6	65.8	54.8	43.2	30.8	18.0	5.5	11.8	25.3	43.2	56.0	67.1	40.9
Crete, Nebr	(1)	(1)	(1)	(1)	(1)	27.1	16.2	19.5	34.6	46.0	59.4	69.4	....
Cumberland, Md	72.9	69.4	62.5	54.0	45.0	36.0	26.6	36.4	40.8	49.0	61.4	68.7	51.9
Dannemora, N. Y	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	40.4	53.8	69.4	....
Dillingersville, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	62.0	(1)	....
Des Moines, Iowa	(1)	(1)	59.5	48.5	33.5	25.8	14.4	19.5	33.3	49.3	59.4	69.1	....
De Soto, Nebr	74.1	70.7	60.0	48.1	36.8	26.0	14.6	17.3	33.4	41.0	60.4	71.2	46.1
Distributing Reservoir, D. C	(1)	(1)	(1)	(1)	(1)	(1)	29.6	42.3	43.7	52.2	66.9	75.6	....
Dorset, Vt	(1)	(1)	(1)	(1)	33.3	(1)	15.6	27.1	28.6	41.2	54.4	62.2	....
Drifton, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	27.3	29.0	40.5	53.7	65.7	....
Dudley, Mass	69.0	66.5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Dyberry, Pa	66.0	62.4	55.3	45.6	37.9	26.5	17.3	27.9	29.5	41.7	55.3	66.8	44.4
Dyersburg, Tenn	76.0	73.0	64.0	61.0	48.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Easton, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	74.0	....
Elk Falls, Kans	(1)	(1)	(1)	(1)	(1)	(1)	18.0	26.0	34.0	38.0	(1)	(1)	....
Elmira, Ill	71.2	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Embarras, Wis	69.5	66.7	67.2	48.0	(1)	(1)	6.3	12.6	30.1	43.6	58.6	69.5	....
Emmitsburg, Md	(1)	(1)	62.0	58.0	45.0	33.0	(1)	(1)	38.5	49.8	62.0	(1)	....
Emporia, Kans	78.4	78.8	69.1	54.0	44.3	34.2	(1)	28.1	(1)	49.9	62.2	(1)	....
Eola, Oreg	66.8	63.8	61.6	49.7	45.9	40.3	36.9	34.3	44.2	51.5	57.9	60.0	51.1
Evansville, Wis	(1)	(1)	(1)	(1)	(1)	(1)	10.0	22.0	31.0	52.0	61.0	77.0	....
Factoryville, N. Y	68.2	64.0	55.7	47.3	40.0	28.3	19.0	29.3	31.8	43.2	55.2	66.8	45.8
Fall Brook, Cal	(1)	(1)	(1)	(1)	(1)	(1)	51.4	58.6	52.4	(1)	(1)	(1)	....

Table of monthly and annual mean temperatures (in degrees Fahrenheit) reported by voluntary observers of the Signal Service, &c.—Continued.

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Fall River, Mass	(1)	(1)	(1)	(1)	(1)	(1)	24.3	31.2	33.6	41.8	54.3	68.3	....
Fallsington, Pa	74.3	(1)	63.8	58.5	44.8	32.3	26.1	37.1	39.9	49.5	61.2	70.5	....
Fallston, Md	78.8	(1)	62.8	54.5	44.8	33.8	26.1	37.4	38.7	48.0	60.5	68.3	....
Fayetteville, Ark	(1)	(1)	(1)	(1)	(1)	(1)	26.8	38.3	46.4	55.0	62.6	71.0	....
Flat Creek, Tenn	77.0	72.0	67.0	63.0	50.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Florence Station, Tenn	77.0	74.0	70.0	63.0	51.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Flushing, N. Y	72.9	69.0	61.0	55.0	45.0	32.0	(1)	33.0	(1)	(1)	(1)	(1)	....
Forsyth, Ga	83.8	81.3	76.5	71.8	(1)	(1)	(1)	56.8	(1)	62.9	74.5	74.2	....
Fort Collins, Colo	(1)	(1)	62.2	(1)	(1)	33.2	23.4	(1)	35.0	45.8	58.8	(1)	....
Fort Scott, Kans	78.5	78.3	67.8	56.8	46.7	37.9	22.2	32.2	(1)	55.5	65.1	76.0	....
Fort Wayne, Ind	72.0	68.0	61.0	52.7	44.0	33.0	20.0	30.0	39.0	48.0	60.0	71.0	49.9
Fostoria, Tenn	(1)	67.0	63.0	60.0	48.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Frankfort, Ky	75.0	70.0	64.0	62.0	48.0	37.6	23.9	41.6	(1)	52.7	64.0	72.8	....
Franklin, Pa	63.2	(1)	52.1	44.9	35.9	(1)	15.3	28.1	30.4	(1)	52.2	68.4	....
Franklin, Tenn	75.0	72.0	66.0	62.0	48.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Franklin, Wis	(1)	(1)	(1)	47.2	35.2	(1)	10.3	17.1	29.1	41.9	57.1	(1)	....
Freehold, N. J	71.2	67.4	61.5	51.2	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Fremont, Nebr	75.7	75.5	60.5	44.2	37.3	25.2	18.8	16.2	32.4	(1)	60.2	74.6	....
Friendship, N. Y	63.0	62.8	53.6	48.2	36.5	20.1	25.0	(1)	(1)	(1)	(1)	(1)	....
Gadsden, Tenn	76.0	75.0	69.0	64.0	52.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Gardiner, Me	66.9	64.6	56.1	44.5	33.4	23.0	(1)	25.5	27.8	43.0	51.2	64.1	....
Garrettsville, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	(1)	30.8	35.0	44.8	57.9	67.8	....
Genoa, Nebr	72.2	70.7	59.9	45.0	34.6	24.1	14.3	14.1	31.8	44.0	59.8	71.8	45.3
Grafton, N. H	(1)	(1)	(1)	(1)	(1)	19.0	(1)	(1)	26.4	(1)	(1)	(1)	....
Grampian Hills, Pa	71.0	66.0	58.5	47.5	37.0	26.3	17.0	28.0	30.1	41.0	53.5	65.9	45.3
Grand Coteau, La	82.8	83.3	78.6	75.5	63.9	59.7	47.5	63.0	66.1	67.5	75.5	80.8	70.3
Grand Junction, Colo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	48.3	(1)	(1)	....
Grand Rapids, Mich	(1)	(1)	(1)	(1)	(1)	25.7	(1)	(1)	32.4	48.3	60.4	72.0	....
Grand View, Tenn	74.0	67.0	64.0	59.0	44.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Grassy Cove, Tenn	64.0	67.0	63.0	(1)	45.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Great Falls Reservoir, Md	77.0	(1)	(1)	57.9	45.3	35.2	(1)	(1)	40.8	49.5	63.9	72.7	....
Greeneville, Tenn	79.0	(1)	72.0	64.0	48.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Greenfield, Ind	69.8	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Green Springs, Ala	82.8	79.8	(1)	70.0	55.4	50.1	37.6	52.3	57.0	61.0	71.8	73.5	....
Grief, Tenn	79.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Griffin, Ind	67.5	(1)	57.0	55.5	34.5	29.5	17.1	31.9	34.2	47.4	(1)	(1)	....
Gunnison, Colo	(1)	(1)	(1)	(1)	(1)	(1)	—0.5	12.2	18.5	33.0	(1)	(1)	....

Guttenberg, Iowa	70.3	66.3	54.3	44.1	34.0	23.0	8.1	17.7	27.2	45.2	57.2	67.0	42.9
Hardison's Mills, Tenn	(1)	70.0	62.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Hartford, Conn	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	57.5	68.8	....
Hastings, Minn	(1)	(1)	(1)	(1)	(1)	(1)	3.6	9.5	24.2	44.6	59.0	69.0	....
Helvetia, W. Va	70.0	66.5	61.8	56.6	45.0	36.4	26.1	40.6	41.0	46.4	57.8	67.5	51.8
Highlands, N. C	67.6	63.0	59.7	54.2	41.8	36.2	26.8	39.0	42.1	45.3	60.0	61.2	49.7
Hiram, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	(1)	34.6	33.3	43.8	(1)	71.7	....
Holton, Kans	73.0	70.0	63.0	50.0	40.0	30.3	19.0	23.0	42.0	(1)	(1)	(1)	....
Howell, Tenn	74.0	74.0	70.0	62.0	49.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Hudson, Mich	(1)	(1)	(1)	(1)	39.0	27.0	15.1	27.2	(1)	(1)	(1)	68.9	....
Hulmerville, Pa	(1)	70.5	63.5	52.2	(1)	(1)	24.6	35.6	(1)	(1)	62.7	70.1	....
Humboldt, Iowa	71.9	66.6	54.5	42.6	31.9	19.7	6.8	9.8	26.8	42.6	55.2	66.6	41.2
Humphrey, N. Y	65.3	63.1	52.2	45.1	37.1	27.1	18.0	25.2	29.7	37.2	54.0	66.2	43.4
Hydesville, Cal	(1)	(1)	(1)	(1)	(1)	46.3	46.2	44.4	48.5	51.7	55.8	59.0	....
Independence, Iowa	71.2	67.5	54.3	45.5	34.3	22.0	9.3	16.5	29.0	46.7	58.6	67.7	43.6
Independence, Kans	73.0	(1)	66.6	56.4	46.3	37.6	22.0	31.0	44.1	52.5	63.8	73.1	....
Indianola, Iowa	74.2	70.9	63.2	47.6	37.0	26.1	15.1	20.8	35.4	49.3	61.2	70.0	47.6
Ionia, Mich	68.0	64.7	56.7	46.6	38.1	27.1	16.0	22.7	30.6	43.8	56.4	68.0	44.9
Ithaca, N. Y	68.6	65.1	56.4	47.6	40.4	28.2	19.5	28.6	30.4	41.5	56.0	68.9	45.9
Jacksonburg, Ohio	75.0	71.3	(1)	56.0	42.6	30.9	19.1	33.0	39.9	49.8	59.9	75.0	....
Jeffersonville, Ind	77.3	(1)	(1)	(1)	46.4	33.8	(1)	39.1	44.0	53.2	64.3	(1)	....
Johnson, Nebr	77.5	72.9	64.1	48.0	38.3	28.0	15.8	19.7	35.4	47.0	(1)	(1)	....
Johnsontown, Va	80.2	76.3	71.3	62.9	53.4	44.8	36.1	47.4	49.2	52.6	(1)	75.1	....
Johnstown, N. Y	64.4	63.9	55.6	45.3	36.9	23.7	(1)	(1)	(1)	(1)	(1)	(1)	....
Kansas, Miss	(1)	(1)	(1)	(1)	(1)	(1)	19.1	(1)	(1)	(1)	(1)	(1)	....
Kiantone, N. Y	66.0	63.2	(1)	53.7	41.2	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Kingston Springs, Tenn	78.0	76.0	67.0	62.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Laconia, Ind	76.3	72.9	67.8	(1)	46.5	37.6	23.0	39.7	44.0	52.8	64.2	70.8	....
La Fayette, Ind	72.7	68.3	61.2	58.9	41.2	24.1	17.6	29.5	37.1	47.9	59.5	(1)	....
Lansing, Mich	70.4	67.8	59.4	48.3	40.1	28.5	16.5	23.9	32.3	45.3	58.2	70.7	46.8
Larchland, Ill	(1)	(1)	(1)	(1)	39.9	31.7	18.6	25.2	(1)	(1)	(1)	(1)	....
Lawrence, Kans	(1)	72.0	63.5	52.7	42.8	33.7	21.0	28.0	41.6	45.8	62.2	71.1	....
Lead Hill, Ark	(1)	(1)	(1)	(1)	(1)	(1)	25.8	38.1	48.7	56.7	67.8	76.4	....
Lebanon, Mo	(1)	(1)	(1)	(1)	(1)	(1)	22.0	34.1	(1)	(1)	(1)	(1)	....
Leetsdale, Pa	69.9	68.4	58.1	51.8	42.2	31.9	21.9	35.0	35.9	45.5	59.5	69.3	49.1
Limona, Fla	(1)	82.0	(1)	78.5	69.4	(1)	(1)	63.6	(1)	71.0	78.9	78.7	....
Lincoln, Nebr	(1)	(1)	(1)	(1)	(1)	24.0	(1)	(1)	(1)	(1)	(1)	(1)	....
Litchfield, Mich	68.0	69.2	58.0	48.9	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Livingston, Tenn	75.0	70.0	65.0	60.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Logan, Iowa	77.0	77.2	64.0	50.6	39.3	29.6	(1)	21.3	36.7	(1)	64.5	71.3	....
Logan, Utah	(1)	(1)	(1)	39.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Logansport, Ind	74.3	69.4	61.5	53.8	42.3	30.5	18.6	29.3	37.6	48.9	62.0	71.6	50.0
Luling, La	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	78.1	....
Lunenburg, Vt	(1)	(1)	(1)	(1)	34.3	17.4	9.1	21.8	24.8	39.2	51.5	65.5	....
Madison, Wis	70.4	67.0	56.3	46.3	34.6	22.3	9.2	16.9	27.4	43.4	57.1	66.0	48.1
Manchester, Iowa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	18.3	29.9	48.3	60.0	63.0	....
Manchester, Tenn	74.0	69.1	58.0	46.2	35.9	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Manhattan, Kans	73.7	77.3	64.2	50.8	40.3	31.8	20.4	25.9	(1)	(1)	(1)	(1)	....
Manhattan (B), Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	24.4	39.5	51.0	63.1	(1)	....
Manistique, Mich	(1)	(1)	(1)	(1)	(1)	(1)	10.1	(1)	23.1	38.1	48.6	59.3	....
Manitowoc, Wis	68.5	63.0	55.0	47.8	36.6	24.4	13.2	29.8	29.0	41.2	52.6	62.3	44.0
Margaretta Township, Ohio	(1)	67.2	62.3	55.5	(1)	35.0	23.7	26.3	36.0	40.5	64.3	72.0	....

Table of monthly and annual mean temperatures (in degrees Fahrenheit) reported by voluntary observers of the Signal Service, &c.—Continued.

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Marion, Va	68.2	69.0	63.0	59.0	44.1	37.5	27.0	42.5	45.0	49.0	62.0	67.0	52.8
Marquette, Nebr	(1)	(1)	67.4	51.8	43.2	(1)	21.2	22.4	(1)	51.2	67.1	80.0	....
Maryville, Tenn	76.0	70.0	70.0	64.0	49.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Mattoon, Ill	75.0	76.5	65.0	54.0	45.0	33.3	21.0	33.5	41.0	51.0	66.0	72.0	52.7
Maud, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	50.6	(1)	(1)	....
Maynard, Iowa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	52.8	64.0	....
Mayport, Fla	82.8	80.5	78.9	76.4	66.2	63.1	53.3	63.7	67.4	69.2	75.6	78.8	71.1
Mazatlan, Mex	82.4	83.1	82.0	80.3	76.2	73.0	69.8	70.8	(1)	70.8	75.8	(1)	....
McDonogh, Md	72.9	68.7	63.5	53.1	45.6	27.9	(1)	36.8	38.9	49.4	56.2	70.5	....
McKenzie, Tenn	82.0	78.0	70.0	64.0	49.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
McMinnville, Tenn	77.0	73.0	66.0	60.0	48.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
McNairy Station, Tenn	78.0	74.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Menand Station (near Albany), N. Y	70.5	68.3	59.7	48.7	40.8	26.2	17.9	23.4	31.5	45.5	57.4	70.4	47.1
Mendon, Mass	72.9	72.2	61.5	48.2	43.0	(1)	21.5	29.9	31.2	43.4	56.6	69.4	....
Milan, Tenn	75.6	73.4	66.6	62.4	49.1	42.1	28.6	44.0	48.7	56.0	66.2	72.4	57.1
Millville Depot, Pa	(1)	(1)	(1)	(1)	(1)	(1)	18.9	30.1	(1)	(1)	(1)	(1)	....
Milton, Mass	72.0	(1)	59.2	(1)	(1)	(1)	(1)	(1)	34.4	43.0	58.8	65.0	....
Minneapolis, Minn	70 2	66.2	55.4	42.4	29.2	15.2	8.8	8.8	23.6	43.2	57.0	67.8	40.2
Monticello, Iowa	72.0	68.0	57.1	47.1	35.0	22.4	9.4	18.1	29.2	46.6	58.6	68.2	44.8
Moorestown, N. J	74.0	68.1	62.2	51.8	42.6	32.0	25.6	36.6	38.6	47.8	60.4	(1)	....
Morrison, Ill	72.8	(1)	(1)	(1)	36.8	(1)	(1)	(1)	(1)	(1)	59.5	68.0	....
Mottville, Mich	(1)	(1)	(1)	55.8	(1)	33.6	(1)	(1)	41.5	(1)	66.1	(1)	....
Mountainville, N. Y	70.4	66.8	59.9	48.1	41.4	(1)	29.7	31.3	33.8	44.9	(1)	68.4	....
Mount Forest, Canada	63.5	65.5	53.0	40.0	32.5	(1)	31.5	26.0	36.0	43.0	54.0	67.5	....
Mount Ida, Ark	80.5	74.5	77.0	68.0	54.5	43.7	32.5	43.2	50.5	57.3	65.5	75.8	60.2
Mount Vernon, Iowa	74.6	(1)	63.2	49.0	33.0	23.5	10.0	19.4	31.8	50.1	63.0	73.0	....
Murfreesborough, Tenn	75.8	(1)	(1)	(1)	50.5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Muscatine, Iowa	(1)	68.3	57.3	47.7	33.0	25.5	10.4	21.1	32.5	46.9	57.8	66.7	....
Nebraska City, Nebr	75.4	(1)	(1)	(1)	(1)	(1)	15.3	(1)	34.4	(1)	(1)	(1)	....
Neillsville, Wis	63.2	64.4	58.3	45.1	33.5	15.0	1.8	8.5	22.0	38.4	53.0	63.8	38.8
Nephi, Utah	71.7	68.4	62.4	48.0	32.6	28.8	22.5	25.0	35.5	42.2	51.3	68.8	46.0
Newark, N. J	(1)	(1)	(1)	(1)	(1)	(1)	28.8	36.2	40.0	50.4	(1)	(1)	....
New Bedford, Mass	69.8	67.0	60.2	48.6	43.1	(1)	26.1	33.1	(1)	(1)	(1)	(1)	....
New Market, N. H	70.5	(1)	(1)	(1)	40.3	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Newport, Fla	(1)	(1)	75.5	73.2	54.7	56.7	46.6	58.0	57.6	65.3	(1)	(1)	....
Newport, Vt	(1)	65.8	56.3	44.2	35.4	19.6	10.9	22.9	26.8	41.1	54.2	63.1	....
New Tacoma, Wash	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	43.0	(1)	(1)	(1)	....

New Ulm, Tex	82.0	(1)	76.4	72.9	61.6	55.1	44.0	56.8	63.4	63.5	72.2	79.0	....
Nora Springs, Iowa	60.0	67.0	56.0	42.0	22.0	20.0	5.0	13.0	(1)	(1)	(1)	(1)	....
Northfield, Minn	68.9	65.4	56.0	44.1	30.9	17.3	(1)	(1)	24.7	43.0	57.2	71.0	....
North Lewisburg, Ohio	73.8	70.0	68.4	53.5	42.8	41.2	15.8	38.0	37.8	48.5	61.5	72.4	51.1
Northport, Mich	65.2	72.0	60.2	49.0	(1)	27.0	15.0	22.5	25.5	42.0	56.0	68.1	....
North Volney, N. Y	67.2	64.9	58.7	47.2	33.6	26.2	16.3	26.3	28.6	40.4	(1)	67.4	....
Oakland, Cal	(1)	(1)	(1)	(1)	(1)	(1)	47.0	48.3	58.2	54.3	59.8	60.8	....
Oakwood, Cal	70.6	71.4	68.5	58.8	56.7	55.0	(1)	(1)	(1)	(1)	(1)	(1)	....
Ogreeta, N. C	(1)	(1)	(1)	(1)	(1)	(1)	29.0	41.1	40.9	59.0	(1)	(1)	....
Orono, Me	6.60	64.8	56.0	48.0	34.7	19.9	12.1	22.4	27.1	42.5	50.0	64.8	41.9
Ottumwa, Iowa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	32.8	49.6	61.4	78.8	....
Palermo, N. Y	64.8	68.0	54.5	44.9	36.4	23.6	14.1	23.8	26.6	38.8	52.4	65.1	42.3
Parimaribo, Dutch Guiana, S. America	78.8	80.5	80.5	80.6	80.1	78.5	77.5	(1)	(1)	(1)	(1)	(1)	....
Paris, Tenn	77.0	71.0	60.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Paterson, N. J	70.0	71.0	66.0	52.0	43.0	32.0	26.0	35.0	38.0	48.0	60.0	(1)	....
Peoria, Ill	76.9	72.8	64.3	46.6	42.5	31.5	17.7	29.2	33.3	51.9	68.9	78.0	50.7
Peru, Nebr	73.5	69.1	55.8	(1)	(1)	29.5	16.7	21.9	37.0	(1)	62.4	68.5	....
Phillipsburg, N. J	64.2	(1)	(1)	47.0	(1)	(1)	(1)	36.5	(1)	(1)	(1)	73.9	....
Pierce City, Mo	70.0	73.0	68.0	55.1	51.0	37.5	28.1	34.8	44.9	52.9	68.4	70.7	54.1
Pleasant Grove, Wash. T	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	52.0	(1)	(1)	....
Point Lobos, Cal	56.2	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Point Pleasant, La	80.7	79.4	83.3	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Polo, Ill	70.8	66.6	58.0	(1)	34.1	24.6	9.8	21.0	29.5	(1)	58.1	67.5	....
Port Jervis, N. Y	69.5	65.5	(1)	47.9	40.4	(1)	20.4	30.1	31.3	45.2	57.7	68.4	....
Portsmouth, Ohio	73.2	69.8	64.6	57.5	46.6	36.4	23.3	40.9	42.5	51.6	62.0	71.1	53.3
Poway, Cal	71.1	70.3	70.6	59.3	55.8	(1)	50.5	(1)	58.8	56.6	61.6	65.2	....
Prairie du Chien, Wis	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	58.9	68.3	....
Princeton, Cal	88.0	73.1	74.4	59.6	51.3	44.3	46.8	46.9	53.5	(1)	66.3	67.7	....
Princeton, Mass	66.6	64.4	57.1	44.5	37.4	24.4	18.9	26.3	28.4	40.4	52.2	64.8	43.8
Pueblo, Colo	(1)	(1)	(1)	(1)	(1)	(1)	29.1	28.9	48.0	47.4	58.2	68.0	....
Puerto de Luna, N. Mex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	40.3	(1)	68.6	(1)	....
Pulaski, Tenn	82.0	(1)	69.0	63.0	49.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Quakertown, Pa	70.4	66.1	59.3	50.8	41.3	30.7	22.6	32.3	34.2	46.1	57.6	66.5	48.1
Raleigh, N. C	(1)	(1)	(1)	(1)	(1)	(1)	38.0	(1)	(1)	(1)	69.0	(1)	....
Rapid City, Dak	(1)	(1)	(1)	(1)	(1)	(1)	24.7	10.5	21.5	(1)	(1)	(1)	....
Readington, N. J	(1)	(1)	62.0	52.3	(1)	32.0	(1)	(1)	(1)	(1)	64.0	78.0	....
Receiving Reservoir, D. C	(1)	(1)	(1)	(1)	(1)	(1)	29.3	41.8	43.2	52.1	66.4	75.5	....
Red Willow, Nebr	85.5	80.9	78.1	55.2	40.0	30.0	(1)	(1)	38.0	48.0	61.0	75.0	....
Richardton, Dak	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	20.8	37.1	55.0	64.7	....
Richmond, Ky	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	64.0	71.8	....
Riddleton, Tenn	74.0	70.0	67.0	62.0	47.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Riley, Ill	69.5	65.6	56.8	46.1	35.5	23.2	9.8	20.5	29.2	43.7	57.0	66.1	43.6
Ripon, Wis	67.9	65.2	55.7	44.7	34.0	21.2	9.0	15.1	28.0	42.7	56.5	67.8	42.3
Rising Sun, Ind	72.2	68.1	62.8	55.0	(1)	41.9	19.1	36.4	(1)	(1)	(1)	(1)	....
Rock Creek Bridge, D. C	(1)	(1)	(1)	(1)	(1)	(1)	31.1	43.7	45.6	55.6	69.8	78.1	....
Rockford, Ill	70.8	67.2	57.7	46.6	37.1	23.8	10.8	21.5	29.2	46.6	59.6	67.4	44.9
Rogersville, Tenn	74.0	71.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Rowe, Mass	65.9	61.9	54.2	42.5	34.4	23.1	16.8	25.6	27.8	40.2	(1)	66.3	....
Ruggles, Ohio	70.3	66.2	59.0	50.6	(1)	(1)	19.9	32.7	34.1	44.4	56.7	67.6	....
Saint Louis, Mo	(1)	74.4	(1)	(1)	(1)	(1)	(1)	(1)	41.9	53.0	64.7	(1)	....
Salina, Kans	79.5	72.0	66.0	51.9	40.4	31.9	22.9	25.2	40.8	49.6	62.4	75.6	51.5
Salinas City, Cal	59.4	56.5	60.5	55.1	50.6	48.5	46.3	40.1	52.7	58.9	58.2	59.2	54.3

Table of monthly and annual mean temperatures (in degrees Fahrenheit) reported by voluntary observers of the Signal Service, &c.—Continued.

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Sandwich, Ill	(1)	(1)	(1)	(1)	(1)	(1)	(1)	24.9	33.7	(1)	60.8	70.5	....
Sandy Springs, Md	73.6	69.1	62.6	53.8	43.4	33.9	26.5	37.7	39.9	48.9	62.1	71.7	51.9
Savannah, Tenn	70.0	72.0	66.0	60.0	49.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Sherlock, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	44.4	49.4	66.8	75.1	....
Smithville, Tenn	75.0	78.0	71.0	60.0	47.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Somerset, Mass	73.7	69.7	62.8	49.9	42.8	28.9	24.8	33.0	35.1	44.7	48.1	68.8	48.4
Somerville, N. J	74.4	69.7	62.2	51.2	41.9	30.8	23.4	33.6	36.4	47.8	60.6	71.8	50.8
South Bend, Ind	(1)	(1)	(1)	(1)	(1)	(1)	25.0	(1)	(1)	(1)	(1)	(1)	....
Southington, Conn	72.8	65.8	59.7	46.3	39.7	26.9	20.8	20.5	32.5	44.4	56.8	(1)	....
South Orange, N. J	77.8	61.8	61.5	52.8	42.9	31.5	23.8	33.2	36.4	48.0	59.1	66.1	49.6
Spiceland, Ind	72.7	68.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	60.6	71.2	....
Springfield, Mo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	65.5	73.8	....
Stateburg, S. C	83.0	77.5	74.0	68.5	51.5	48.5	37.0	48.0	52.5	61.0	69.5	71.0	61.8
Statesville, N. C	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	52.6	57.9	70.5	73.4	....
Stella, Nebr	(1)	(1)	(1)	(1)	38.9	28.9	16.2	20.5	(1)	(1)	(1)	(1)	....
Stockham, Nebr	83.2	79.1	81.6	60.0	52.3	40.8	28.2	(1)	45.0	56.0	71.2	81.0	....
Strafford, Vt	69.1	66.7	57.5	44.7	38.7	19.8	12.6	23.0	25.5	40.5	54.4	67.4	43.8
Sunman, Ind	(1)	(1)	64.8	55.1	44.6	33.6	20.2	35.1	44.4	49.8	63.8	75.1	....
Sussex, Wis	67.3	65.1	56.0	45.1	34.8	21.8	10.9	17.7	26.8	40.8	54.6	64.7	42.0
Swanwick, Ill	74.4	71.1	69.1	56.7	46.2	36.0	22.1	33.9	43.4	52.5	68.5	71.8	53.4
Swartz Creek, Mich	68.8	(1)	57.7	47.5	39.4	26.8	15.8	22.7	29.4	42.9	55.9	68.0	....
Sycamore, Ill	(1)	(1)	(1)	(1)	(1)	(1)	11.5	22.0	30.8	44.9	56.9	66.8	....
Table Rock, Nebr	75.4	(1)	61.7	48.8	37.9	28.2	(1)	(1)	(1)	(1)	(1)	(1)	....
Tamaqua, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	52.0	67.0	78.0	....
Taunton, Mass	70.4	(1)	59.7	49.7	48.6	29.8	24.6	36.8	35.8	45.0	55.7	65.8	....
Terre Haute (H.), Ind	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	64.0	(1)	....
Thornville, Mich	70.5	66.9	58.7	(1)	40.0	27.8	16.4	24.6	31.0	44.1	58.0	70.1	....
Topeka, Kans	78.0	73.5	61.0	53.5	(1)	33.1	19.6	28.8	42.5	51.8	62.8	77.0	....
Trenton, Tenn	75.0	78.0	65.0	60.0	48.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Troy, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	31.0	35.5	(1)	61.8	....
Utica, Nebr	(1)	(1)	(1)	(1)	(1)	24.7	(1)	(1)	(1)	(1)	(1)	(1)	....
Variety Mills, Va	74.6	70.8	68.8	56.1	45.7	38.3	30.5	43.4	44.5	53.1	(1)	69.8	....
Vermillion, Dak	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	45.0	64.5	(1)	....
Vevay, Ind	77.3	73.2	68.0	59.1	47.9	37.0	23.0	40.2	45.0	52.1	64.3	78.9	55.1
Vineland, N. J (F. T. Hill)	(1)	(1)	(1)	50.0	47.5	36.0	26.0	(1)	(1)	50.5	(1)	78.4	....
Vineland, N. J	77.7	71.0	65.4	54.8	46.1	35.4	28.1	40.2	41.4	(1)	64.9	(1)	....
Wabash, Ind	72.4	69.7	58.8	51.2	43.6	32.6	18.7	30.5	37.8	47.9	61.6	71.1	49.6

Warrenton, Mo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	54.0	65.5	(1)	....
Wausau, Wis	(1)	(1)	(1)	(1)	(1)	(1)	(1)	10.7	24.8	40.5	55.1	65.1	....
Wauseon, Ohio	70.0	63.5	57.2	48.7	40.8	28.4	14.5	26.2	83.1	44.9	58.8	69.5	46.4
Waverly, Tenn	77.9	(1)	69.0	68.0	54.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Webster, Dak	76.6	73.4	62.9	45.4	83.0	14.4	1.7	—0.3	18.8	29.8	57.6	76.6	40.8
Weldon, N. C	79.8	75.5	69.0	61.0	51.4	43.2	84.7	48.3	49.6	55.2	68.7	72.3	59.1
Wellington, Kans	74.5	79.4	63.8	53.3	42.6	84.4	23.9	26.6	41.6	50.7	60.8	71.5	51.9
Wellsborough, Pa	67.6	63.0	52.8	50.8	40.8	29.8	19.1	13.8	(1)	48.6	58.0	68.3	....
Westborough, Mass	(1)	67.9	59.6	46.8	40.8	27.8	22.4	81.5	84.4	45.7	58.7	67.8	....
West Chester, Pa	72.6	68.2	61.4	51.9	42.8	31.6	24.3	85.1	86.9	46.7	69.4	69.1	50.8
Westerville, Ohio	70.7	66.2	60.2	52.4	41.8	81.0	17.4	83.5	86.9	47.4	59.0	69.9	48.9
Westmoreland, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	47.0	62.0	72.4	....
White Bluffs, Tenn	78.0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
White Plains, N. Y	73.0	68.7	(1)	52.5	44.2	82.5	24.9	88.8	86.8	47.7	58.6	69.3	....
Wilkes Barre, Pa	69.3	65.4	57.8	49.8	41.6	80.4	21.6	82.3	83.8	45.9	58.2	(1)	....
Williamstown, Mass	(1)	(1)	(1)	(1)	(1)	(1)	18.3	27.8	29.2	42.1	54.5	(1)	....
Woodstock, Md	73.4	68.9	63.1	57.1	(1)	83.7	27.6	89.8	89.9	52.9	65.0	71.0	....
Woodstock, Vt	67.8	63.4	55.8	42.2	85.1	19.6	11.1	24.4	26.7	42.0	54.2	66.2	42.8
Worcester, Mass	(1)	(1)	(1)	(1)	89.6	25.9	20.4	28.8	26.6	(1)	(1)	64.9	....
Wyandotte, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	89.5	50.8	60.5	72.5	....
Wytheville, Va	71.4	(1)	64.5	56.0	44.6	88.5	29.2	43.1	45.2	49.6	62.7	65.9	....
Yates Centre, Kans	76.6	73.8	64.0	54.6	45.0	83.9	19.5	27.7	41.8	45.6	61.8	(1)	....

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[1] No record.

APPENDIX 42.

Maximum and minimum temperatures and annual range of temperature (in degrees Fah
1883, to June,

[From self-register

Station.	1883.											
	July.		August.		September.		October.		November.		December.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°	°	°
Accotink, Va	98	60	98	57	87	45	84	37	78	18	63	20
Aiken, S. C	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	80	24	70	28
Albany, Oreg	89	54	82	48	90	46	65	29	61	36	52	26
Alexandria, Dak	98	55	91	51	87	28	73	17	62	− 5	56	−18
Allison, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	70	14	61	25
Ames, Iowa	92	56	86	55	85	36	80	25	(1)	(1)	(1)	(1)
Amherst, Mass	93	55	86	43	80	36	77	27	67	18	58	−13
Andersonville, Ga	(1)	(1)	(1)	(1)	(1)	(1)	99	54	79	29	77	21
Andersonville, Tenn	96	56	94	50	91	46	(1)	(1)	(1)	(1)	(1)	(1)
Anna, Ill	98	57	93	57	93	44	88	37	73	13	70	11
Ann Arbor, Mich	88	46	86	46	83	31	80	29	54	8	55	2
Archer, Fla	94	71	92	72	90	62	94	59	86	33	80	23
Ardenia (Phillipstown), N. Y	92	59	86	53	80	45	80	31	62	20	58	− 2
Ashton Plantation, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Ashwood, Tenn	94	64	92	65	91	50	84	50	76	20	66	18
Atchison, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Athens, Ga	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Auburn, Ala	(1)	(1)	(1)	(1)	(1)	(1)	90	42	78	24	70	20
Auburn, N. Y	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	53	−10
Austin, Tenn	93	58	92	56	91	50	86	44	74	18	66	18
Austin, Tex	98	58	92	56	91	50	92	49	88	39	79	37
Bainbridge Island, Wash	84	46	78	46	76	38	68	33	60	26	54	20
Barnesville, Tex	(1)	(1)	(1)	(1)	110	65	(1)	(1)	(1)	(1)	(1)	(1)
Battle Creek, Mich	(1)	(1)	90	43	85	29	76	32	62	20	55	11
Beech Grove, Tenn	90	56	89	49	91	45	86	40	73	16	(1)	(1)
Beloit, Wis	94	46	91	47	85	34	80	28	61	4	54	− 9.5
Belvidere, N. J	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Benton, Tenn	97	64	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Bethel, Conn	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Blooming Grove, Pa	92	52	90	46	81	38	75	20	64	14	55	− 4
Bolivar, Tenn	91	65	91	60	90	50	84	44	74	18	(1)	(1)
Bowling Green, Ky	94	62	92	55	93	50	(1)	(1)	79	9	69	21
Brevard, N. C	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Bristol, N. H	92	52	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Brownsville, Tenn	99	61	98	54	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Brunswick, Ga	96	85	95	78	90	70	90	60	(1)	(1)	(1)	(1)
Bunker Hill, Ill	(1)	(1)	(1)	(1)	96	39	79	28	75	6	68	5
Burlington, Vt	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	69	12	54	−18.7
Canal Dover, Ohio	100	50	(1)	(1)	(1)	(1)	94	32	74	26	70	8
Carson City, Nev	100	43	96	38	91	34	72	21	67	10	57	7.5
Careyville, Tenn	90	60	88	52	(1)	(1)	(1)	(1)	65	14	(1)	(1)
Catawissa, Pa	91	48	90	46	81	35	78	28	70	18	56	4
Cedar Rapids, Iowa	93	46	91	43	(1)	(1)	87	24	64	Zero.	57	−21
Chambersburg, Pa	92	56	91	55	85	29	75	32	69	15	53	8
Chapel Hill, N. C	102	60	101	53	94	49	92	42	83	17	71	20
Charlestown, Mass	96	50	91	49	81	40	79	28	67	16	58	−12
Charlotte, Vt	87	52	90	50	82	33	73	18	72	10	55	−17
Chester, Minn	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Chuckaluck, Tenn	(1)	(1)	(1)	(1)	88	42	(1)	(1)	(1)	(1)	(1)	(1)
Cincinnati (G. W. H.), O	96	61	94	56	93	44	87	37	73	18	63	16
Clarksville, Tex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	71	28
Clay Center, Kans	103	62	(1)	(1)	90	52	86	30	72	11	74	3
Clear Creek, Nebr	(1)	(1)	98	57	(1)	(1)	82	24	66	5	58	− 9
Cleburne, Tex	102	70	102	58	100	42	96	38	84	23	78	24
Cleveland, Ohio	98	56	92	51	87	36	81	36	67	17	58	14
Clinton, Ind	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Coal Harbor, British Columbia	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

APPENDIX 42.

renheit) reported by voluntary observers of the Signal Service, United States Army, July 1884, *inclusive.*

ing thermometers.]

1884.												Annual range.
January.		February.		March.		April.		May.		June.		
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
°	°	°	°	°	°	°	°	°	°	°	°	°
52	0.4	73	12	69	10	80	33	92	50	96	54	97.6
69	8	76	18	80	23	89	38	90	54	(1)	(1)	....
59	24	66	8	66	31	80	40	88	46	88	52	82
45	−33	47	−34	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
62	−17	60	−20	77	Zero.	84	27	92	32	95.5	54	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
40	− 8	46	5	54	Zero.	70.3	31.2	85.2	37.6	(1)	(1)	....
70	12	81	26	81	26	91.8	46.4	98	65	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
65	−21	68	6	72	15	88	31	88	47	92	55	114
51	−16.6	(1)	(1)	(1)	(1)	68.5	30	(1)	(1)	(1)	(1)	....
79	21	86	36	93	36	90	44	95	61	90	63	74
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	88	80	93.5	47	....
(1)	(1)	(1)	(1)	(1)	(1)	87	33	89.5	50	90	52	....
66	8	70	1	76	25	82	34	88	52	94	58	93
63	− 6	(1)	(1)	70	8	77	30	86	41	90	55	....
(1)	(1)	(1)	(1)	(1)	(1)	87	33	99.5	50	(1)	(1)	....
67	3	74	16	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
47	−14	50	− 4	56	2	72	30.5	86	37	87	54	....
64	12	68	4	73	22	82	32	86	42	(1)	(1)	....
76	20	(1)	(1)	84	32	87	41.5	92	49	96	64	....
54	25	56	7	66	22	78	38	84	38	80	43	77
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
47	4	55	− 6	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
39	−27	38	−10	65	− 9	79	28	79	32.5	86	43.5	121
(1)	(1)	(1)	(1)	(1)	(1)	68	35	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	88	26	(1)	(1)	....
46	− 6	55	− 4	60	− 3	76	28	88	42	88	50	98
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
63	− 8	69	8	74	6	(1)	(1)	(1)	(1)	(1)	(1)	....
60	3	71	11	74	11	84	28	88	40	94	44	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	80	28	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
68	−27	62	− 1	72	5	84	31	86	38	95.1	50.3	....
46	−14	49	−19	56	− 5.3	72.3	24.5	81.8	36.5	88.5	42.4	....
50	−16	62	Zero.	72	8	76	32	84	32	(1)	(1)	....
56	− 5.5	52	−18	60	21	71	27	82	32	89.5	36.5	118
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
48	− 5	62	Zero.	65	Zero.	76.5	31.5	89.5	35.5	89.5	43.5	96
39	−34	44	−14	67	−10	80	23	80	33	88	48	....
45	− 4	52	4	65	8	76	32	91	38	90	56	96
61	Zero.	76	16	80	16	88	35	94	43	98.5	41	102
50	− 2	59	3	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
39	−16	48	3	52	−12	78	26	82	38	91	48	106
39	−38	40	−24	63	−18	70	21	81	35	89	51	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
57	−20	70	− 2	76	9	83	33	93	46	98	60	118
71	3	75	10	79	30	84	34	83	50	98	56	....
60	−17	63	− 9	(1)	(1)	(1)	(1)	(1)	(1)	95	55	....
46	−24	51	−15	70	− 5	(1)	(1)	88	39	93	53	....
72	1	78	16	84	28	90	32	92	46	96	58	101
50	− 8.5	62	− 1	63	8	74	26.5	80	36	86	51	100.5
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	84	38	94	50	....
(1)	(1)	(1)	(1)	(1)	(1)	72	36	80	40	(1)	(1)	....

Maximum and minimum temperatures and [illegible]

Stations.	July.		August.									
	Max.	Min.	Max.	Min.					M			Min.
	°	°	°			°	°	°	°	°	°	°
College City, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
College Hill, Ohio	99	62	99	54	92	55	86	41	76	12	60	12
Collinsville, Ill	94.5	56	94	53	89	38	84	31	70	10.5	63	6
Conception, Mo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	70	9	62	-7.8
Contoocook, N. H	(1)	(1)	87	40	(1)	(1)	(1)	(1)	72	15	56	17
Conway, Kans	(1)	(1)	94	62	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Cooperstown, N. Y	84	55	82	47	75	38	74	27	66	14	54	-15
Cornish, Me	95	52	84	45	81	28	74	22	(1)	(1)	49	-19
Covington, Tenn	93	61	(1)	(1)	94	50	89	42	75	20	(1)	(1)
Cresco, Iowa	93	52	86	50	82	33	80	23	60	-3	50	-24
Crete, Nebr	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	56	-6.5
Cumberland, Md	90	56	86	56	78	42	76	40	68	18	56	18
Curryville, Mo	96	(1)	(1)	(1)	(1)	(1)	(1)	(1)	64	10	(1)	(1)
Dannemora, N. Y	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Des Moines, Iowa	95	51	91	44	91	85	86	31	69	4	58	-14
De Soto, Nebr	97	53	93	48	91	39	83	24	64	6	54	-11
Devil's Lake, Dak	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dillingersville, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Distributing reservoir, D. C	95	66	92	61	85	48	88	37	70	22	58	22
Dorset, Vt	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	71	6	57	-21
Drifton, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Dudley, Mass	90	47	87	46	85	84	86	25	64	11	(1)	(1)
Dyberry, Pa	87	44	87	87	78	28	72	18	63	9	53	8
Dyersburg, Tenn	91	64	93	58	87	40	86	[illegible]	78	17	(1)	(1)
Easton, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East Portland, Oreg	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
East Tawas, Mich	85	51	85	50	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Elk Falls, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	46	10
Elmira, Ill	96	55	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Embarras, Wis	94	52	85	50	82	32	77	25	(1)	(1)	52	-20
Emmitsburg, Md	(1)	(1)	(1)	(1)	82	40	80	28	70	12	60	5
Emporia, Kans	100	59	92	56	92	32	87	29	72	10	66	6
Eola, Oreg	91	52	87	55	88	48	61	38	58	32	52	24
Evansville, Wis	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Factoryville, N. Y	90	52	89	40	80	33	77	22	70	8	58	4
Fall Brook, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Fall River, Mass	88	49	83	47	80	39	77	28	65	17	55	-10
Fallsington, Pa	93	57	91	52	84	42	81	35	74	18	56	3
Fallston, Md	93	55	80	40	80	40	81	34	70	19	58	9
Fayetteville, Ark	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	71	12
Flat Creek, Tenn	90	62	89	48	91	47	84	42	72	16	(1)	(1)
Florence Station, Tenn	95	63	94	63	92	54	87	47	75	19	(1)	(1)
Flushing, N. Y	93	61	84	60	78	48	73	46	66	21	59	1
Forsyth, Ga	98	74	95	65	96	60	96	51	84	28	76	24
Fort Collins, Colo	(1)	(1)	91	47	95	32	74	18	66	17	57	4
Fort Madison, Iowa	96	60	98	52	89	43	80	31	66	9	59	4
Fort Scott, Kans	97	64	97	61	95	46	90	36	76	15	72	8
Fort Wayne, Ind	95	53	95	48	90	37	83	36	68	11	58	10
Fostoria, Tenn	(1)	(1)	90	45	90	42	87	25	69	14	(1)	(1)
Frankfort, Ky	91	59	93	47	89	39	84	40	73	13	65	10
Franklin, Pa	88	46	86	42	80	32	76	20	62	12	48	4
Franklin, Tenn	89	68	87	54	[illegible]	48	82	44	74	16	(1)	(1)
Franklin, Wis	(1)	(1)	(1)	(1)	(1)	(1)	77	28	63	5	(1)	(1)
Freebold, N. J	98	51	91	47	83	37	80	29	(1)	(1)	(1)	(1)
Fremont, Nebr	102	52	93	46	93	40	83	24	66	3	57	-12
Friendship, N. Y	88	50	82	38	78	27	82	17	68	10	52	2
Gadsden, Tenn	91	62	91	61	89	54	84	45	73	20	(1)	(1)
Gardiner, Me	85	44	83	41	74	35	71	18	58	12	47	-14
Garrettsville, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Genoa, Nebr	94	54	92	53	90	40	78	20	64	4	58	-9
Germantown, Pa	92	59	89	58	81	41	82	33	70	20	54	6
Golden, Colo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	62	1.5
Grafton, N. H	90	42	88	35	80	30	72	17	69	12	46	-18
Grampion Hills, Pa	92	44	94	44	82	29	80	24	60	4	52	4
Grand Coteau, La	92	73	92	72	90	58	90	48	83	32	77	30
Grand Junction, Colo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Grand Rapids, Mich	(1)	(1)	(1)	(1)	90	31	(1)	(1)	60	11	57	11
Grand Turk Island, W. I	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Grand View, Tenn	94	49	85	44	90	32	81	39	69	10	(1)	(1)
Grassy Cove, Tenn	88	57	89	43	87	41	(1)	(1)	68	12	(1)	(1)
Great Falls Reservoir, Md	93	62	90	56	84	43	80	34	72	13	60	13
Greeneville, Tenn	90	67	(1)	(1)	90	53	80	43	73	19	(1)	(1)
Greenfield, Ind	89	58	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Green Springs, Ala	99	70	100	[illegible]	[illegible]	64	94	44	80	24	70	22
Grief, Tenn	96	62	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)

Fahrenheit) *reported by voluntary observers of the Signal Service, &c.*—Continued.

1884.												Annual range.
January.		February.		March.		April.		May.		June.		
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
°	°	°	°	°	°	°	°	°	°	°	°	°
67	28	76	26	78	36	82	47	94	58	96	55	....
54	−19	60	− 2	70	4	(1)	32	90	40	96	61	....
64	−23	61	3	70	8	81.5	32	85	43	93	52	117.5
47	−31.5	53	− 9.7	68	0.5	73	25	80	35	85.1	57	....
(1)	(1)	(1)	(1)	56	−11	(1)	(1)	85	32	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
45	−10	46	− 1	49	Zero.	68	27	84	34	85	54	100
38	−11	47	3	56	− 4	(1)	(1)	83	38	92	46	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
38	−33	36	−18	66	−16	73	20	78	35	87	53	126
45	−25.3	57	−16	73	− 4.6	80.6	24.5	87.8	32.2	91	44.8	....
54	− 2	62	3	65	9	76	30	85	40	85	50	92
(1)	−36	52	Zero.	70	Zero.	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	47	− 5	64	20	79	26	87	45	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	87	40	(1)	(1)	....
50	−31.3	51	− 8	72	− 8	77	23	80	41	86	54	126.3
46	−24	53	−14	69	− 4	75	25	84	32	94	45	121
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	64	15	(1)	(1)	....
48	5	71	12	65	14	78	34	90	45	93	55	90
47	−19.5	57	− 1	53	− 9	70.8	12	82.5	29.8	87	38.5	....
(1)	(1)	56	− 8	65	− 8	73	24	88	32	92	41	....
47	2	(1)	(1)	(1)	(1)	(1)	(1)	86	43	(1)	(1)	....
45	−16	45	− 4	58	− 6	71	31	90	27	91	36	107
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
42	1	56	6	64	5	(1)	(1)	92	47	95	54	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	86	42	88	50	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
38	2	38	− 4	50	26	56	32	(1)	(1)	68	51	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
46	−35	40	−20	62	−15	75	26	84	42	90	49	....
(1)	(1)	(1)	(1)	69	9	79	31	86	46	89	54	....
(1)	(1)	60	− 4	(1)	(1)	80	28	84.5	38	(1)	(1)	....
57	18	60	3	62	25	75	41	86	43	82	52	88
44	−30	47	−10	68	−15	80	30	84	30	94	50	....
47	−21	50	− 1	57	Zero.	72	25	87	30	88	40	111
76	33	85	39	75	38	(1)	(1)	(1)	(1)	(1)	(1)	....
48	1	52	4	62	3	65	26	78	33	90	40	100
47	− 3	64	8	63	8	73	33	87	46	93	53	96
47	4	65	9	60	8	71	30	85	40	92	49	89
67	−19	67	5	73	14	78	32	85	40	90	46	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	48	6	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
72	6	78	20	80	26	(1)	(1)	92	59	92	63	....
52	−11	(1)	(1)	58	12	71	12	78	31	(1)	(1)	....
40	−30	44	2	67	− 1	83	28	83	44	91	56	123
64	−24	64	1	78	17	80	31	86	42	95	58	121
52	−18	57	− 7	70	3	80	30	82	40	95	55	113
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
58	−19.8	69	4	(1)	(1)	83	25	86.2	42.6	92.2	52.3	....
42	−22	59	−12	60	−10	(1)	(1)	80	34	90	53	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
44	−22	37	−11.2	52	− 4	69.8	30.2	75.2	41	88	60	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
47	−26	53	−23	70	− 9	79	24	87	29	96	47	123
42	5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
44	−19	44	Zero.	48	−19	63	24	75	32	84	37	104
(1)	(1)	63	− 6	62	−10	76	27	82	30	92	40	....
42	−28	56	−22	69	−11	77	22	86	39	95	45	123
40	− 6	56	5	58	5	(1)	(1)	84	41	92	50	....
61	− 2	67	−17.5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	48	−11	(1)	(1)	(1)	(1)	(1)	(1)	....
42	−16	54	− 8	56	− 4	72	22	88	29	86	46	110
76	20	78	28	80	38	81.9	39.8	85.2	58.1	96.2	65.5	76.2
(1)	(1)	(1)	(1)	(1)	(1)	76	33	(1)	(1)	(1)	(1)	....
46	−18	55	−11	63	− 6	76	27	83	36	94	48	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	88	30	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	61	10	77	32	89	43	90	52	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
46	−23	61	− 2	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
67	4	76	20	80	32	83	40	87	60	92	58	96
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....

Maximum and minimum temperatures and annual range of temperature (in degrees

Stations.	1883.											
	July.		August.		September.		October.		November.		December.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°	°	°
Griffin, Ind	89	46	(1)	(1)	85	29	81	30	65	4	59	1
Gunnison, Colo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Guttenberg, Iowa	100	54	94	50	84	32	88	24	62	2	50	—24
Hampton, Va	85	68	84	68	81	63	(1)	(1)	(1)	(1)	63	26
Hardison's Mills, Tenn	(1)	(1)	90	55	(1)	(1)	85	42	(1)	(1)	(1)	(1)
Harrisville, Mich	(1)	(1)	93	33	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Hartford, Conn	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Hastings, Minn	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Haverford College, Pa	(1)	(1)	(1)	(1)	(1)	(1)	76	37	69	21	(1)	(1)
Heath, Mass	92	46	92	40	80	28	78	20	68	8	50	—24
Helvetia, W. Va	92	48	88	43	83	34	82	40	70	10	64	9
Highlands, N. C	86	54	83	45	83	37	78	36	65	9	59	5
Hillsdale, Mich	89	43	90	42	85	29	80	26	63	7	55	1
Hiram, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Holton, Kans	96	58	94	46	96	37	88	31	75	7	62	—4
Howell, Tenn	90	63	92	56	95	50	88	43	74	18	(1)	(1)
Hudson, Mich	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	61	7	54	— 2
Hulmeville, Pa	(1)	(1)	90	56	84	38	77	30	(1)	(1)	(1)	(1)
Humboldt, Iowa	94	51	90	51	92	30	77	20	62	Zero.	52	—22
Humphrey, N. Y	87	50	87	48	72	33	80	32	64	15	57	Zero.
Hydesville, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	66	32	64	34
Independence, Iowa	88	52	86	49	81	34	80	31	58	6	50	—10
Independence, Kans	99	55	(1)	(1)	92	40	88	30	77	13	70	10
Indianola, Iowa	96	60	91	54	92	40	79	30	67	8	56	—12
Ionia, Mich	86	50	94	37	88	29.5	78	26	62	5	58	1
Ithaca, N. Y	(1)	(1)	90	42	79	34	77	24	66	13	59	— 4.5
Jacksonburg, Ohio	(1)	(1)	94	48	(1)	(1)	80	38	68	8	64	3
Jeffersonville, Ind	94	57	(1)	(1)	(1)	(1)	(1)	(1)	75	12	64	14
Johnson, Nebr	100	60	98	56	93	42	84	24	64	15	57	— 2
Johnsontown, Va	95	69	95	64	87	56	90	44	79	25	64	25
Johnstown, N. Y	88	39	88	34	79	20	75	17	70	Zero.	56	—30.5
Kalamazoo, Mich	90	50	93	46	90	35	76	31	61	14	59	7
Kiantone, N. Y	86	45	85	40	(1)	(1)	74	29	62	19	(1)	(1)
Kingston Springs, Tenn	90	60	91	52	89	51	80	38	(1)	(1)	(1)	(1)
Klamath, Oreg	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Laconia, Ind	97	56	94	53	92	42	(1)	(1)	72	11	68	14
Lafayette, Ind	92	50	89	55	87	32	82	32	64	4	60	— 3
Lancaster, Wis	(1)	(1)	91	44	(1)	(1)	84	22	(1)	(1)	52	18
Lansing, Mich	90	50	92	43	89	32	78	30	64	9	56	2
Larchland, Ill	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	58	12	59	—47
Lawrence, Kans	(1)	(1)	92	52	91	46	87	32	74	14	63	3.5
Lead Hill, Ark	100	61	102	56	95	36	92	35	83	15	82	16
Lebanon, Mo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Leetsdale, Pa	86	52	82	50	74	39	72	31	62	18	54	15
Lenoir, N. C	92	60	87	55	84	47	78	42	75	15	64	17
Liberty Hill, La	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	72	38
Limona, Fla	100	70	99	70	96	68	94	63	96	48	84	31
Lincoln, Nebr	106	61	102	64	96	44	89	30	(1)	(1)	74	3
Litchfield, Mich	(1)	(1)	77	60	73	38	71	35	(1)	(1)	(1)	(1)
Livingston, Tenn	88	61	90	54	89	41	83	41	(1)	(1)	(1)	(1)
Logan, Iowa	97	56	97	47	93	42	80	24	70	8	58	10
Logan, Utah	(1)	(1)	(1)	(1)	(1)	(1)	48	30	48	9	48	10
Logansport, Ind	96	52	92	48	96	52	92	48	89	34	69	20
Luling, La	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Lunenburg, Vt	90	50	82	42	78	40	70	20	64	10	44	26
Madison, Wis	88	55	86	51	79	38	79	28	60	2	51	11
Manchester, Iowa	(1)	(1)	87	51	80	37	87	31	62	6	(1)	(1)
Manchester, Tenn	91	68	90	55	90	51	84	38	74	14	(1)	(1)
Manhattan, Kans	98	57	96	58	100	42	90	28	72	8	68	1
Manhattan (B), Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Manistique, Mich	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Manitowoc, Wis	87	55	85	50	76	33	73	29	55	1	51	—10
Margaretta Township, Ohio	84	66	86	64	79	50	84	33	63	22	57	13
Marion, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	95	10	(1)	(1)
Marion, Va	88	55	90	48	84	42	80	35	72	10	58	16
Marquette, Nebr	(1)	(1)	86	63	84	41	76	32	65	14	55	Zero.
Marshall, Mich	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	56	4
Maryville, Tenn	96	66	92	58	93	54	84	45	76	19	(1)	(1)
Mattoon, Ill	96	56	96	52	94	37	86	32	69	6	70	Zero.
Maud, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Maynard, Iowa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Mayport, Fla	97	71	97	75	91	68	92	65	81	52	78	36
Mazatlan, Mexico	91.7	68	92	69	93	62	90	66	89	63	83	59
McDonogh, Md	89	58	94	45	79	40	77	34	69	16	56	12
McKensie, Tenn	96	68	93	64	89	42	80	36	72	16	(1)	(1)

Fahrenheit) reported by voluntary observers of the Signal Service, &c.—Continued.

1884.												
January.		February.		March.		April.		May.		June.		Annual range.
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
°	°	°	°	°	°	°	°	°	°	°	°	°
52	-26	63	-4	68	-5	70	25	(1)	(1)	(1)	(1)	....
31	-30	36	-27	43	-18	58	12	(1)	(1)	(1)	(1)	....
42	-38	38	-18	68	-12	86	26	84	34	90	50	138
51	7	60	23	52	26	(1)	(1)	78	57	85	60	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	90	32.5	97	49.3	....
39	-38	37	-26	62	-22	74.5	19	83.7	31.8	99	45	....
40	7	60	6	59	6	68	32	85	39.5	88	41	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	80	32	92	50	....
58	-7	68	-2	68	8	78	25	88	36	96	40	103
50	-8	64	-4	69	10	76	22	80	44	80	52	94
49	-20	54	-7	60	-9	76	22	80	30	95	47	115
(1)	(1)	60	-12	61	Zero.	67	29	(1)	(1)	89	56	....
54	-24	59	-8	75	7	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
47	-30	55	-8	(1)	(1)	(1)	(1)	83	28	91	47	....
45	-8	62	8	(1)	(1)	(1)	(1)	85	38	96	50	....
41	-33	44	-23	66	-10	70	27	80	36	86	36	127
37	-9	54	-15	49	-4	70	24	84	33	88	50	103
65	30	78	24	68	34	78	40	80	46	76	50	....
39	-29	40	-10	63	-10	74	27	76	40	82	56	117
62	-20	64	-1	75	16	78	28	91	35	99	49	....
47	-28	51	-8	69	-4	70.4	30	77	40	88	60	124
45	-24	50	-18	60	-8	78	26	78.5	31.5	89	44	118
46	-15	55	-4	56	-3.5	73	24	90	32	93.5	44	....
40	-28	64	4	68	Zero.	89	26	89	38	101	54	....
(1)	(1)	70	11	74	10	82	32	88	43	(1)	(1)	....
53	-28	55	-14	68	2	78	31	(1)	(1)	(1)	(1)	....
61	4	76	19	72	19	79	37	(1)	(1)	91	58	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
42	-10	49	-1	62	6	(1)	(1)	81	39	90	51	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	78	21	(1)	(1)	95	37	....
60	-23	70	3	73	6	83	31	87	44	95	61	....
55	-28	60	-4	70	-5	79	28	80	36	(1)	(1)	....
(1)	(1)	(1)	(1)	67	-17	(1)	(1)	(1)	(1)	(1)	(1)	....
47	-13	56	-13	64	-9	76	25	82	34	89	47	105
48	-28	45	-3	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
57	-21.5	57	-1	73	12	76.5	28.5	85	36	92	48	....
69	-15	73	Zero.	79	17	87	28	93	46	100	51	117
76	-32	68	-1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
52	-12	65	Zero.	66	1	77.2	23	86.5	31.8	90	47.9	102
54	3	66	11	70	12	(1)	(1)	74	(1)	86	45	....
71	13	71	22	77	48	79	53	83	68	94	72	....
82	28	86	40	91	38	95	47	98	62	100	62	72
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
48	-28	56	-10	70	-4	(1)	(1)	84	41	94	44	....
48	-13	43	-34	42	17	(1)	(1)	(1)	(1)	(1)	(1)	....
60	-24	60	-5	72	-4	88	26	84	40	92	58	120
78	18	(1)	(1)	(1)	(1)	75	41	(1)	(1)	99	64	....
46	-23	45	-4	50	-12	68	20	78	35	86	40	113
42	-27.2	37	-13	61	-9.3	76	25	78	36	85	47	115.2
(1)	(1)	48	-14	68	-9	80	31	83	38	90	47	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
60	-23	63	-6	(1)	(1)	(1)	(1)	(1)	(1)	101	54	....
58	-9	(1)	(1)	80	10	88	27	88	37	(1)	(1)	....
43	-21	37	-26	62	-26	65	17	79	29.5	83	39	....
42	-22	43	14	58	-10	64	26	80	30	86	40	109
50	-16	46	6	57	5	72	31	69	48	80.2	56.2	102
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
60	-8	68	Zero.	72	8	79	27	82	41	90	52	98
42	-22	50	-3	66	10	78	32	81	41	89	67	....
47	-12	43	-8	59	8	80	30	81	42	92	53	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
62	-28	62	2	70	-3	83	30	85	42	94	52	124
(1)	(1)	(1)	(1)	(1)	(1)	79	22	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	86	(1)	(1)	(1)	68	34	89	48	....
75	27	82	41	(1)	43	86	55	89	60	90	70	70
79	53	80.3	55.5	(1)	(1)	81.3	54	86	61.3	(1)	(1)	....
(1)	(1)	63	7	62	3	72	33	84	41	87	49	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....

[1] No record.

Maximum and minimum temperatures and annual range of temperature (in degrees

Stations.	1883.											
	July.		August.		September.		October.		November.		December.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°	°	°
McMinville, Tenn	93	66	90	60	86	49	85	43	76	17	(1)	(1)
McNairy Station, Tenn	93	65	92	60	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Menand Station, near Albany, N. Y	91	59	87	44	80	35	78	26	66	18	53	−16
Mendon, Mass	89	56	88	56	72	43	76	27	67	16	75	13
Mendon, Mich	89	56	88	56	72	43	(1)	(1)	(1)	(1)	60	8
Milan, Tenn	95	59	93	52	93	39	89	40	76	16	75	20
Milledgeville, Ga	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Milton, Mass	94	58	98	47	81	38	78	23	67	18	58	−11
Millville, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	57	10
Minneapolis, Minn	94	57	94	50	84	29	74	19	59	− 2	40	−21
Monticello, Iowa	96	49	92	49	84	31	87	27	62	2	54	−13
Moorestown, N. J	96	59	94	54	87	38	81	31	72	18	54	8
Morrison, Ill	95	50	(1)	(1)	(1)	(1)	(1)	(1)	60	5	(1)	(1)
Morriston, Dak	106	50	98	42	74	28	(1)	(1)	(1)	(1)	(1)	(1)
Mottville, Mich	(1)	(1)	96	46	90	34	80	30	63	8	57	5
Mountainville, N. Y	93	48	90	39	84	31	88	20	70	15	54	−21
Mount Forest, Canada	81	46	84	47	79	25	58	22	61	4	44	− 6
Mount Ida, Ark	99	56	90	50	94	32	90	33	76	20	76	18
Mount Vernon, Iowa	99	58	(1)	(1)	90	40	70	28	69	Zero.	54	−12
Murfreesborough, Tenn	91	63	(1)	(1)	(1)	(1)	(1)	(1)	72	18	(1)	(1)
Muscatine, Iowa	93	48	89	43	90	33	86	26	66	4	60	−11
Nebraska City, Nebr	95	60	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	58	12
Neillsville, Wis	97	42	90	41	82	24	80	19	69	− 6	47	−29
Nephi, Utah	93	62	93	(1)	85	30	64	19	66	5	51	− 3
Newark, N. J	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New Bedford, Mass	85	57	84	52	80	47	70	29	61	18	54	−10
New Market, N. H	94	48	(1)	(1)	(1)	(1)	(1)	(1)	70	12	(1)	(1)
Newport, Fla	(1)	(1)	94	70	92	59	92	54	79	30	75	24
Newport, Vt	84	46	80	37	80	37	76	20	67	6	45	−20
New Tacoma, Wash	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
New Ulm, Tex	101.5	63	103	66	83	63	94	45	86	36	78	31
Noblesville, Ind	90	55	90	49	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Nora Springs, Iowa	92	47	98	42	86	32	80	28	60	2	48	−19
Northfield, Minn	94	44	87	44	81	29	78	19	60	Zero.	57	−19
North Lewisburg, Ohio	92	52	92	48	89	36	83	30	68	9	56	6
Northport, Mich	81	58	82	58	80	42	70	32	60	16	56	10
North Volney, N. Y	88	53	92	53	81	36	83	25	66	17	53	−14
Oakland, Cal	85	53	85	51	93	52	77	42	72	34	(1)	(1)
Oakwood, Cal	95	60	100	59	105	56	82	46	84	36	78	34
Ogreeta, N. C	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	57	15
Ore Knob, N. C	88	56	87	48	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Orono, Me	86	51	84	36	80	33	75	19	58	9	48	—20
Oskaloosa, Iowa	(1)	(1)	86	57	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Ottumwa, Iowa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Palermo, N. Y	86	54	82	50	79	35	80	21	63	16	49	—19
Parimaribo, Dutch Guiana, S. A	89	69	91	69	93	70	94	68	93	70	92	68
Paris, Tenn	90	65	88	64	90	50	(1)	(1)	(1)	(1)	(1)	(1)
Paterson, N. J	97	60	90	57	78	49	85	34	70	24	53	Zero.
Peoria, Ill	98	52	95	50	90	41	83	34	67	11	62	— 1
Peru, Nebr	93	56	93	54	90	41	81	28	70	7	59	— 5
Phillipsburg, N. J	88	57	84	46	71	38	76	30	63	17	50	4
Pierce City, Mo	98	51	99	59	93	38	87	37	75	15	70	19
Pleasant Grove, Wash	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Point Lobos, Cal	70	49	71	49	84	50	65	46	65	39	(1)	(1)
Point Pleasant, La	96	70	97	64	100	54	(1)	(1)	(1)	(1)	(1)	(1)
Polo, Ill	93	47	90	43	85	31	78	27	57	Zero.	54	—12
Port Jervis, N. Y	90	53	87	46	80	36	79	23	61	15	52	— 8
Portsmouth, Ohio	95	54	93	49	92	42	84	38	77	14	72	10
Poway, Cal	93	62	94	61	102	56	81	42	82	36	80	35
Prairie du Chien, Wis	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Princeton, Cal	107	56	102	52	108	53	85	38	78	24	67	22
Princeton, Mass	87.3	46	87	46	80	32	78	27	62	10	50	—18
Princeton, N. J	107	56	103	52	103	53	(1)	(1)	(1)	(1)	(1)	(1)
Providence, R. I	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pueblo, Colo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	72	16	72	Zero.
Puerto de Luna, N. Mex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pulaski, Tenn	92	65	(1)	(1)	91	47	86	35	71	17	(1)	(1)
Quakertown, Pa	90	49	86	50	79	37	77	28	68	16	52	4
Quitman, Ga	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Raleigh, N. C	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Randolph, Vt	81	48	80	41	80	41	74	25	60	20	(1)	(1)
Rapid City, Dak	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	70	4	45	—2.3
Readington, N. J	(1)	(1)	(1)	(1)	80	42	80	32	68	20	54	Zero.
Receiving Reservoir, D. C	96	64	96	58	87	48	80	36	73	17	62	18

[1] No record.

Fahrenheit) reported by voluntary observers of the Signal Service, &c.—Continued.

1884.												Annual range.
January.		February.		March.		April.		May.		June.		
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
°	°	°	°	°	°	°	°	°	°	°	°	°
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
46	−10	48	5	53	4	72	32	84	30	90.5	55.5	107
42	− 4	53	0.2	58	3	64	28	83	40	88	51	98
48	−21.5	(1)	(1)	(1)	(1)	(1)	(1)	82	41	97	46	....
67	−10	72	13	76	24	84	31	87	46	92	56	105
(1)	(1)	(1)	(1)	79	21	(1)	(1)	88	50	88	52	....
46	− 4	56	1	59	1.5	68	26	85	36	90	44	109
50	−12	55	Zero.	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
88	−33	39	−18	58	−16	72	21	82	35	87	48	127
42	−33	44	−12	68	− 8	80	18	83	34	93	44	129
46	0.5	66	8	63	8	74	32	90	41	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	80	27	88	50	....
(1)	(1)	(1)	(1)	70	−10	78	26	85	30	98	50	....
49	−24	55	− 7	60	− 5	81	28	78.2	34	89	50	....
49	−15	56	− 1	61	− 8	73	22	(1)	(1)	97	37	....
40	−23	41	−11	49	−23	68	18	77.5	31	87	48	110
72	− 2	76	10	78	20	84	27	84	48	94	50	101
45	−35	46	− 8	65	− 8	84	25	88	41	94	53	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
45	−28	45	− 4	66	− 3	82	25	81	36	89	45	121
(1)	−30	(1)	−14	68	− 5	(1)	(1)	(1)	(1)	(1)	(1)	....
36	−36	35	−25	55	−24	69	18	75	29	89	36	133
47	−12	49	−16	52	18	68	25	80	30	91	40	....
54	9	56	9	62	8	74	37	(1)	(1)	(1)	(1)	....
46	1	55	5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
69	18	76	32	80	36	83	45	(1)	(1)	(1)	(1)	....
48	−29	43	− 4	54	−24	72	24	80	38	92	44	121
55	25	(1)	(1)	61	23	(1)	(1)	(1)	(1)	76	52	....
78	12	70	22	84	33	86.5	40.5	79	61.5	95	62	91
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
40	−28	39	−18	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
41	−29	34	−19	62	−12	71	18	80	31	89	43	123
49	−23.5	59	− 4	65	2	78	27	84	34	94.5	50	118
37	− 4	43	− 2	50	− 3	70	28	76	37	86	52	90
41	− 6	45	3	53	2	74	26	(1)	(1)	89	52	....
60	31	78	28	67	38	70	48	81	48	78	54	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
50	— 2	61	11	70	19	66	40	72	57	77	66	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
43	—29	44	—8.4	50	—14	65.9	23.8	75.5	34.1	88.6	38.2	117.6
34	—29	(1)	(1)	65	— 4	(1)	(1)	80	38	89	55	....
49	— 3.5	(1)	(1)	71	— 2	79.6	27.4	83	38	90	54.5	....
40	—10	43	Zero.	49	Zero.	71	25	85	33	89	54	108
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
49	Zero.	52	5	69	6	72	33	87	40	(1)	(1)	....
48	- 27	49	5	67	Zero.	85	31	84	44	94	50	126
54	—23	55	— 9	70	1	(1)	(1)	80	39	87	56	....
42	—10	58	2	64	4	(1)	(1)	(1)	(1)	92	54	....
62	— 9	70	— 6	73	18	80	28	89	35	92	48	108
(1)	(1)	(1)	(1)	63	3	75	29	85	32	89	36	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
39	—23	39	—12	65	— 7	(1)	(1)	82	30	95	46	....
38	— 3	50	2	57	1	(1)	(1)	87	39	92	52	....
58	—16	68	5	59	8	84.5	32	90	41	93	52.5	111
76	31	(1)	(1)	71	40	74	43	79	52	97	56	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	83	42	89	52	....
65	28	75	22	74	37	75	38	89	46	92	52	85
40	— 6.5	52	— 2	50	— 3	63	20	81.5	27	89.7	41	107.7
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	87.5	32	95	40	....
60	—11	66	—13	70	16	74	30	83	38	90	54	....
(1)	(1)	(1)	(1)	81	19	(1)	(1)	90	43	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
42	— 2	52	2	59	— 2	68	28	81	37	88	41	92
70	17	(1)	(1)	82	41	(1)	(1)	(1)	(1)	(1)	(1)	....
63	2	(1)	(1)	(1)	(1)	(1)	(1)	85	50	(1)	(1)	....
(1)	(1)	(1)	(1)	50	Zero.	(1)	(1)	(1)	(1)	(1)	(1)	....
46	— 5	45	—36	56	—11	(1)	(1)	(1)	(1)	(1)	(1)	....
44	Zero.	54	16	62	6	76	36	90	46	100	52	....
51	4	72	10	67	13	88	33	92	44	94	52	88

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[1] No record.

Maximum and minimum temperatures and annual range of temperature (in degrees

Stations.	1883.											
	July.		August.		September.		October.		November.		December.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°	°	°
Red Willow, Nebr	104	52	102	52	92	86	88	24	70	10	60	Zero.
Reed City, Mich	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Richardton, Dak	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Richmond, Ky	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Riddleton, Tenn	91	57	89	54	90	45	85	42	82	17	(1)	(1)
Riley, Ill	93	46	90	47	86	36	78	30	60	2	53	—11.8
Ripon, Wi	90	47	88	46	83	32	80	30	63	Zero.	50	—16
Rising Sun, Ind	92	58	90	53	86	42	82	85	(1)	(1)	70	10
Rock Creek Bridge, D. C	98	66	93	63	86	50	86	41	76	19	62	21
Rockford, Ill	95	54	89	53	83	39	80	28	61	6	55	— 9
Rogersville, Tenn	89	63	90	61	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Rowe, Mass	87	50	84	37	76	36	76	18	67	9	51	—23
Ruggles, Ohio	95	55	90	50	85	38	72	31	64	12	(1)	(1)
Sacramento, Cal	102	51	96	50	96	47	80	35	71	25	67	27
Saint Louis, Mo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Salem, Ind	(1)	(1)	(1)	(1)	89	48	(1)	(1)	(1)	(1)	(1)	(1)
Salem, N. J	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Salina, Kans	89.5	65	90	55	82	52	78	38	64	20	49	8
Salinas City, Cal	74	54	78	52	101.5	50	76	38	75	29	75	32
Sandwich, Ill	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Sandy Springs, Md	95	56	92	52	85	40	78	31	73	14	58	12
San Raphael, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Santa Barbara, Cal	(1)	(1)	(1)	(1)	98	57	75	47	(1)	(1)	(1)	(1)
Savannah, Tenn	90	61	91	55	91	45	87	44	76	17	(1)	(1)
Sherlock, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Smithville, Tenn	88	64	86	59	86	50	82	42	71	12	(1)	(1)
Snowville, Va	92	50	88	49	80	39	80	34	70	11	62	19
Somerset, Mass	97	50	90	44	87	38	82	24	65	14	58	—20
Somerville, N. J	94	61	89	55	84	42	80	32	62	16	54	1
South Bend, Ind	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Southington, Conn	96	56	89	46	84	32	82	22	65	12	52	—20
South Orange, N. J	92	59	90	50	84	44	84	34	72	18	54	— 1
Spiceland, Ind	92	49	91	46	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Springfield, Ark	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	60	23
Springfield, Mo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Stateburg, S. C	98	68	95	60	92	56	88	49	79	24	72	25
State College, Pa	89	49	85	47	78	34	74	27	66	12	60	3
Statesville, N. C	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Stella, Nebr	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	67	10	64	— 6
Stockham, Nebr	96	66	92	66	90	48	82	40	70	30	68	6
Strafford, Vt	88	54	86	46	80	40	74	26	66	8	48	—28
Sunman, Ind	(1)	(1)	93	50	90	35	80	34	72	8	58	10
Sussex, Wis	92	50	88	48	85	36	79	27	60	Zero.	52	—13
Swanwick, Ill	92	59	94	58	90	44	87	33	71	14	68	6
Swartz Creek, Mich	88	52	92	48	88	37	79	26	64	5	55	— 2
Sycamore, Ill	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Syracuse, N. Y	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Table Rock, Nebr	98	62	(1)	(1)	98	(1)	86	26	65	4	60	— 6
Tallahassee, Fla	(1)	(1)	92	71	(1)	(1)	(1)	(1)	(1)	(1)	73	28
Tamaqua, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Taunton, Mass	94	(1)	90	(1)	85	33	88	21	66	11	55	—11
Terre Haute, Ind	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Thornville, Mich	91	47	94	42	85	34	80	29	65	6	56	4
Topeka, Kans	99	63	95	54	94	47	86	25	74	13	73	Zero.
Traverse City, Mich	86	53	88	43	85	33	68	24	56	9	54	9
Trenton, Tenn	90	61	88	59	88	41	84	40	73	16	(1)	(1)
Troy, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Utica, Nebr	(1)	(1)	99	48	95	38	(1)	(1)	(1)	(1)	64	4
Variety Mills, Va	97	54	94	50	86	46	82	36	74	12	64	18
Vermilion, Dak	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	43	—24
Vevay, Ind	95	55	92	54	95	55	92	54	92	45	(1)	(1)
Vineland, N.J. (F. T. Hill)	(1)	(1)	(1)	(1)	(1)	(1)	70	31	77	16	58	10
Vineland, N. J	98	56	92	50	84	40	82	32	76	20	62	10
Voluntown, Conn	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	60	—18
Warrenton, Mo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wabash, Ind	89	60	90	53	82	35	79	37	64	10	59	7
Washington, D. C	96	60	95	52	86	44	(1)	(1)	(1)	(1)	(1)	(1)
Wausau, Wis	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wauseon, Ohio	92	43	93	41	89	29	85	26	66	6	56	— 5.4
Waverly, Tenn	89	60	(1)	(1)	86	42	86	41	76	16	(1)	(1)
Weaverville, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Webster, Dak	108	49	100	44	96	25	83	8	75	—18	66	—22
Websterville, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Weldon, N. C	102	62	96	54	86	52	88	45	81	20	67	18
Wellington, Kans	97	56	93	51	93	42	90	31	75	12	65	10

(1) No record.

Fahrenheit) reported by voluntary observers of the Signal Service, &c.—Continued.

1884.												Annual range.
January.		February.		March.		April.		May.		June.		
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
°	°	°	°	°	°	°	°	°	°	°	°	°
49	—15	68	—14	77	Zero.	88	26	86	22	104	47	119
(1)	(1)	49	—25	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
38	—34	(1)	(1)	64	—17	71	18	76	30	88	51	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	84	47	87.8	59	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
40	—31	38	—10.5	64	—10	77.3	25.5	78.5	32.6	87.1	45.8	124
42	—30	38	—15.5	64	14	78	27	78	32	86	43	120
53	—22	65	2	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
49	6	74	11	70	16	88	33	97	50	96	60	92
41	—28	39	— 9	64	— 8	79	29	78	42	87	51	123
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
46	—15	48	— 2	54	— 3	64	26	84	29	87	46	110
45	—20	58	— 4	66	Zero.	80	24	88	36	91	54	....
62	27	74	25	72	36	80	38	87	48	92	58	77
(1)	(1)	(1)	(1)	72	9	81.5	32	87	44	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	89	50	98	42	....
52	4	48	3	65	11	68	35.8	70	46	84.5	63	87
65	30	76	25	72	34	72.5	44.5	80.5	50	72	54	76.5
42	— 6	(1)	(1)	66	— 7	(1)	(1)	82	44	93	54	....
51	2	66	7	65	7	78	30	92	36	97	46	95
(1)	(1)	(1)	(1)	(1)	(1)	74	56	86	40	(1)	43	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	76	11	83.6	31.1	88.6	38	96.5	56	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
59	Zero.	68	4	69	9	(1)	(1)	82	38	88	43	....
42	— 7	58	2	69	2	76	26	89	32	98	42	117
43	—7.5	55	0.5	62	8	69.2	33.5	88.5	46.2	94	53.5	101.5
36	—24	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
49	— 9	48	— 1	64	— 0.9	70	14	91	26	(1)	(1)	....
44	4	58	4	64	4	76	32	88	40	92	46	93
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	84	35	95	54	....
61	— 2	69	18	(1)	(1)	(1)	(1)	(1)	(1)	87	65	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	89	46	98	58	....
66	8	75	21	77	28	84	38	86	53	89	53	90
46	— 5	54	— 4	59	4	(1)	(1)	81	32	88	48	....
(1)	(1)	71	16	78	16	82	36	90	51	98	54	....
55	—26	56	—14	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
50	6	58	2	68	16	74	38	82	48	94	74	94
42	—14	44	— 2	46	— 4	66	22	80	34	90	52	118
51	—24	62	— 6	70	Zero.	84	30	86	34	94	56	....
39	—27	36	—16	62	—12	77	23	78	33	88	44	119
64	—22	63	2	68	10	80	36	88	46	91	58	116
49	—25	61	—16	57	—15	69	28	81	28	88	43	117
39	—28	36	— 7	63	— 7	77	28.8	78	43	89	52	....
(1)	(1)	51	2	55	2	(1)	(1)	86	40	94	58	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
74	13	(1)	(1)	84	40	82	52	91	62	86	65	....
(1)	(1)	(1)	(1)	(1)	(1)	76	28	90	46	100	56	....
51	— 3	54	3	65	4	71	26	85	31	95	34	....
57	—21	63	— 6	66	8	79	37	80	48	89	59	....
47	—19	54	—12	60	—12	71	26	83	34	92	50	113
59	—22.5	68	— 5	75	10	77	31	86	30	96	58	121.5
39	—22	45	—19	54	—23	75	17	78	30	90	44	113
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
49	—23	56	— 5	61	— 2	68	20	86	26	92.5	35	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
50	—8.5	70	10	72	12	81.6	26.6	90.5	36.8	87.8	45.6	105.5
47	—34.5	58	—27	70	—10	78	22.5	84	29	(1)	(1)	....
(1)	(1)	(1)	(1)	75	6	85	31	89	43	94	57	....
(1)	(1)	(1)	(1)	(1)	(1)	74	28	(1)	(1)	98	48	....
52	4	67	10	68	10	(1)	(1)	92	42	(1)	(1)	....
50	— 4	55	Zero.	64	— 2	(1)	(1)	83	32	94	54	....
(1)	(1)	(1)	(1)	(1)	(1)	81	33	87	50	(1)	(1)	....
54	—20	56	Zero.	67	1	76	32	81	40	91	56	111
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	92.5	42	95	(1)	....
41	—32	36	—26	58	—25	70.5	20	79.5	30.5	89	39	....
50	—31.7	58	— 8.1	65	— 7.5	78.6	21.5	82	29	92	48	124.7
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
65	6	(1)	(1)	66	29	(1)	(1)	(1)	(1)	(1)	(1)	....
39	—39	37	—33	54	—31	68	17	87	26	102	54	147
46	—28	63	— 3	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
61	Zero.	74	19	77	16	82	36	98	50	94	58	102
58	—13	64	— 5	77	13	91	27	87	38	95	58	119

(1) No record.

Maximum and minimum temperatures and annual range of temperature (in degrees

Stations.	1883.											
	July.		August.		September.		October.		November.		December.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°	°	°
Wellsborough, Pa	92	45	93	42	81	28	78	19	67	14	57	2
Wellsburg, W. Va	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	16	(1)	(1)
Wentworth, Dak	(1)	(1)	(1)	(1)	82	25	(1)	(1)	(1)	(1)	(1)	(1)
West Bend, Iowa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Westborough, Mass	98	44	91	46	85	30	84	19	74	16	58	—17
West Chester, Pa	91	57	89	52	81	40	78	33	64	17	54	5
Westerville, Ohio	91	47	91	43	86	34	81	33	70	10	58	8
West Leavenworth, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	75	20	63	—2
Westmoreland, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
White Bluff, Tenn	95	60	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
White Plains, N. Y	87	60	82	53	78	45	80	31	67	17	48	7
Wilkesbarre, Pa	92	43	92	41	84	31	80	22	70	12	54	5
Williamstown, Mass	81	61	76	56	(1)	34	69	25	(1)	(1)	(1)	—29
Woodstock, Md	94	54	92	50	82	41	74	28	70	13	68	10
Woodstock, Vt	90	39	89	36	82	29	77	14	69	7	47	—32
Worcester, Mass	87	54	84	45	77	39	79	25	64	17	53	—12
Wyandotte, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Wytheville, Va	90	61	86	45	81	43	90	34	68	10	(1)	(1)
Yates Centre, Kans	97	57	94	54	93	38	90	28	76	9	72	1

[1] No record.

Fahrenheit) reported by voluntary observers of the Signal Service, &c.—Continued.

1884.												Annual range.
January.		February.		March.		April.		May.		June.		
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
°	°	°	°	°	°	°	°	°	°	°	°	°
42	—24	48	—10	(1)	(1)	72	26	84	40	95	50	....
(1)	—14	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
40	—28	39	—18	68	—12	(1)	(1)	(1)	(1)	(1)	(1)	....
46	— 8	60	5	60	— 3	65	28	93	87	100	85	117
48	3	60	5	60	4	71.5	31	86	88	90.5	45	88
(1)	(1)	(1)	(1)	65	— 4	79	27	86	33	91	49	....
55	—26	60	1	74	12	78	30	86	40	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	80	21	85	84	95	46	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
41	— 1	48	— 2	60	3	70	28	82	28	85	51	89
50	— 9	59	— 1	60.9	— 2.5	76.1	26	91	32	(1)	(1)	....
39	— 6.8	49	4	49.9	— 2.1	67.5	27.7	80.7	31	(1)	(1)	....
48	— 2	68	5	65	5	80	28	91	38	91	41	98
45	—36	52	— 5	54	—16	75	17	85	25	96	36.3	132
42	— 1	56	1	52	2	(1)	(1)	80	33	86	47	....
(1)	(1)	(1)	(1)	70	9	73	28.5	81	40	90	55	....
58	— 2	72	2	69	11	81	26	83	37	85	43	....
60	—22.5	62	— 4	76	6	77	26.4	88	32.5	(1)	(1)	....

(1) No record.

APPENDIX 43.

Table showing the monthly and annual mean temperature (in degrees Fahrenheit) at military post hospitals for the year ending June 30, 1884.

[The daily mean is obtained by dividing the sum of the 7 a. m., 2, and twice the 9 p. m. observations by four; the monthly mean by dividing the sum of the daily means by the number of days in the month.]

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Abraham Lincoln, Fort, Dak	69.2	66.8	56.9	38.8	24.5	11.7	2.2	−2.6	18.5	38.6	57.2	71.1	37.7
Alcatraz Island, Cal	56.1	55.3	58.6	56.7	53.1	49.3	48.3	47.9	52.3	53.2	54.9	56.6	53.5
Angel Island, Cal	71.4	60.2	63.5	59.0	55.3	52.0	52.4	51.6	52.3	56.3	60.3	61.4	58.0
Apache, Fort, Ariz	70.3	69.4	63.8	50.6	41.1	38.9	34.9	40.2	42.8	47.5	55.6	63.9	51.6
Assinaboine, Fort, Mont	68.6	68.9	57.8	40.3	26.3	22.9	13.2	4.2	23.1	42.5	59.0	67.9	41.2
Barrancas, Fort, Fla	(1)	(1)	(1)	(1)	(1)	(1)	43.8	55.7	64.8	69.0	77.8	81.1	....
Benicia Barracks, Cal	66.7	67.4	70.3	59.2	52.5	46.0	47.6	48.1	53.4	55.9	61.7	63.1	57.7
Bidwell, Fort, Cal	73.8	71.2	65.6	47.8	42.0	38.0	33.3	29.7	37.4	44.2	55.8	58.5	49.8
Bowie, Fort, Ariz	78.1	77.6	74.0	63.1	(1)	(1)	(1)	(1)	(1)	61.3	74.4	(1)	....
Brady, Fort, Mich	60.0	59.7	52.5	40.8	31.4	17.8	8.0	8.7	18.5	30.8	49.3	64.0	37.3
Bridger, Fort, Wyo	65.3	62.6	55.5	38.3	31.0	25.4	20.6	16.8	28.1	35.7	48.9	60.5	40.7
Buford, Fort, Dak	69.0	64.9	53.6	39.2	22.4	9.8	5.6	−2.0	19.6	39.3	56.1	71.1	37.4
Canby, Fort, Wash T	61.1	60.4	60.0	51.1	47.3	44.3	42.6	38.2	44.0	50.5	53.4	55.2	50.7
Columbus, Fort, N. Y. H	74.3	71.8	64.1	53.8	44.3	38.1	25.8	34.5	37.4	(1)	58.8	69.0	....
Concho, Fort, Tex	82.5	85.7	74.4	67.1	56.5	49.2	39.0	49.5	58.8	62.6	68.7	78.3	64.4
David's Island, N. Y	74.0	70.3	63.2	53.0	43.4	32.0	24.9	32.7	35.8	46.6	57.5	66.7	50.2
Davis, Fort, Tex	73.8	72.9	67.0	62.7	51.6	46.7	39.3	51.6	54.5	55.5	64.1	72.0	59.3
Ellis, Fort, Mont	63.8	63.5	55.9	34.9	30.8	26.3	17.3	13.0	27.5	39.0	53.2	63.4	40.7
Fred Steele, Fort, Wyo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	39.9	35.5	50.0	65.2	....
Garland, Fort, Colo	64.5	62.0	52.7	40.7	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Gaston, Fort, Cal	74.9	70.3	64.0	52.8	45.8	39.9	41.9	41.7	47.8	53.3	62.4	63.8	54.9
Grant, Fort, Ariz	75.1	73.8	71.7	58.2	50.0	45.1	41.4	45.5	48.2	54.3	64.3	74.5	58.5
Hale, Fort, Dak	70.0	69.9	59.5	43.0	31.8	20.1	11.5	6.8	27.6	43.1	55.2	(1)	....
Hamilton, Fort, N. Y. H	75.0	71.0	65.4	53.4	44.9	34.4	26.2	34.4	36.1	45.8	57.4	69.0	51.1
Jefferson Barracks, Mo	76.7	74.3	68.7	57.7	49.7	38.6	22.4	34.1	42.0	51.7	65.0	72.7	54.5
Keogh, Fort, Mont	67.2	67.3	55.4	37.0	25.8	21.0	12.4	7.6	25.8	40.0	(1)	(1)	....
Klamath, Fort, Oreg	68.6	59.3	54.5	40.5	35.5	30.5	24.2	22.5	33.4	41.0	52.5	54.9	42.7
Lapwai, Fort, Idaho	75.2	74.2	61.2	47.5	42.0	33.2	31.8	25.7	42.6	52.9	63.1	(1)	....
Leavenworth, Fort, Kans	77.9	74.0	63.4	53.0	44.0	35.1	21.1	27.9	41.3	50.8	62.0	72.1	51.9
Lewis, Fort, Colo	65.5	63.6	56.6	41.2	33.0	28.2	22.3	23.2	28.7	35.0	48.4	58.6	42.0
Lowell, Fort, Ariz	(1)	(1)	(1)	66.4	58.5	49.8	48.8	56.8	56.3	62.0	(1)	(1)	....
Lyon, Fort, Colo	(1)	75.6	66.1	52.3	41.2	33.0	24.2	26.6	40.8	49.0	59.9	71.3	....
Madison Barracks, N. Y	66.8	65.6	57.4	47.1	39.5	24.1	13.9	23.6	27.6	40.2	52.8	65.4	43.7
Maginnis, Fort, Mont	62.5	62.3	58.1	35.8	29.2	27.2	21.1	9.3	26.5	36.6	50.6	60.3	39.5
Mason, Fort, Cal	64.9	60.2	63.0	58.2	52.7	47.5	49.8	59.9	56.4	57.8	60.6	60.0	56.8

McDermitt, Fort, Nev	82.5	77.1	69.1	44.8	38.1	31.6	28.8	22.0	32.5	39.5	46.1	57.8	47.0
McDowell, Fort, Ariz	90.8	90.3	84.6	65.8	57.5	50.6	49.2	(1)	(1)	63.8	(1)	(1)	....
McHenry, Fort, Md	75.8	72.5	64.8	(1)	44.5	34.8	27.1	38.8	(1)	50.8	63.5	71.7	....
Meade, Fort, Dak	69.2	70.6	57.8	39.9	33.5	25.4	20.1	8.0	26.6	38.2	51.8	65.9	42.2
Mitchell, Camp, Ga	(1)	77.8	72.5	64.8	49.2	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Mojave, Fort, Ariz	95.3	95.8	87.6	68.8	62.3	54.9	51.7	52.5	(1)	67.8	77.0	(1)	....
Monroe, Fort, Va	78.4	75.6	70.0	61.4	52.0	44.4	35.2	47.0	47.0	52.1	66.3	72.2	58.5
Mount Vernon Barracks, Ala	82.4	82.3	78.8	74.6	60.8	56.8	43.7	59.4	63.9	67.1	74.5	76.6	68.4
Niagara, Fort, N. Y	67.5	66.2	57.5	48.2	41.5	29.9	19.8	26.4	30.1	40.0	51.6	64.7	45.2
Niobrara, Fort, Nebr	72.0	71.4	62.1	41.9	38.3	26.2	14.8	12.0	28.8	(1)	(1)	(1)	....
Pembina, Fort, Dak	62.4	61.7	51.6	36.1	16.7	0.7	—8.6	—10.1	8.3	(1)	49.3	(1)	....
Plattsburg Barracks, N. Y	68.2	66.2	56.5	44.6	36.8	21.0	9.7	22.0	26.9	41.8	53.9	67.1	42.9
Preble, Fort, Me	66.7	67.0	57.2	47.1	44.5	26.1	19.5	27.7	29.3	42.2	(1)	(1)	....
Presidio, Cal	58.2	57.8	60.7	57.1	52.4	49.0	48.2	48.5	52.9	54.2	57.8	58.7	54.6
Randall, Fort, Dak	73.1	72.2	60.2	46.1	35.8	24.9	14.0	8.5	19.8	45.7	61.0	73.1	45.4
Reno, Fort, Ind. T	77.3	76.6	69.6	59.6	49.2	41.1	30.5	35.5	(1)	55.8	65.3	(1)	....
Robinson, Fort, Nebr	72.0	71.1	59.5	41.4	38.3	30.8	23.0	18.0	(1)	41.6	57.2	(1)	....
Saint Augustine, Fla	81.2	79.4	76.7	74.9	64.8	59.6	51.6	60.6	65.6	75.4	74.6	76.0	70.0
Shaw, Fort, Mont	62.2	62.5	53.4	36.4	30.0	28.6	21.9	9.9	27.4	40.3	52.4	63.0	40.7
Sisseton, Fort, Dak	67.9	67.0	55.9	40.2	26.9	11.5	—0.4	—2.5	17.1	38.3	55.8	69.5	37.3
Snelling, Fort, Minn	71.2	67.5	56.3	43.6	31.0	15.8	3.7	8.0	24.1	44.0	58.6	68.5	41.0
Spokane, Fort, Wash T	72.3	68.8	57.4	44.2	35.3	26.7	22.4	16.1	34.8	49.6	60.1	68.2	46.3
Sully, Fort, Dak	72.0	71.2	60.6	44.0	32.5	20.9	11.6	5.5	27.2	44.0	59.7	73.7	43.6
Totten, Fort, Dak	66.9	65.7	56.4	40.1	20.9	6.7	—2.2	—4.6	13.3	36.3	56.1	69.6	35.4
Townsend, Fort, Wash T	62.7	59.9	58.0	49.8	45.9	42.1	40.0	34.9	43.0	52.0	56.1	(1)	....
Union, Fort, N. Mex	68.8	66.3	59.7	48.2	41.2	34.5	31.5	34.7	39.3	43.6	52.6	61.9	48.5
Verde, Fort, Ariz	80.0	80.4	74.6	61.5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Warren, Fort, Mass	68.8	66.6	59.6	51.3	43.1	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Washakie, Fort, Wyo	(1)	68.8	57.8	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
West Point, N. Y	72.8	68.5	61.4	51.0	(1)	(1)	(1)	(1)	(1)	46.3	58.7	70.2	....
Wingate, Fort, N. Mex	70.4	68.9	63.3	49.6	40.7	35.5	31.7	33.4	39.1	45.9	57.7	67.4	50.3
Yates, Fort, Dak	72.2	69.4	58.9	39.2	27.5	15.1	5.9	1.4	21.1	40.8	58.7	72.4	40.2

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[1] No record.

APPENDIX 44.

Table showing the maximum, minimum, and annual range of temperature (in degrees

[From self-regis-

Stations.	1883.									
	July.		August.		September.		October.		November.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
	°	°	°	°	°	°	°	°	°	°
Abraham Lincoln, Fort, Dak	94	43	92	42	93	16	74	17	60	—17
Alcatraz Island, Cal	69	50	69	50	82	52	72	49	73	37
Angel Island, Cal	82	50	85	50	99	50	88	46	75	39
Apache, Fort, Ariz	97	51	92	50	96	37	79	22.7	72	16
Assinaboine, Fort, Mont	97	40	93	36	86	25	65	17	65	—26
Barrancas, Fort, Fla	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Benicia Barracks, Cal	101	53	101	54	100	55	85	45	75	37
Bidwell, Fort, Cal	90	50	87	43	85	38	76	27	68	13
Bowie, Fort, Ariz	103	60	96	61	94	47	85	34	77.2	81.5
Brady, Fort, Mich	78	39	79	36	72	25	66	18	61	—10
Bridger, Fort, Wyo	89	32	88	26	80	19	68	11	56	2
Buford, Fort, Dak	99	40	96	36	91	16	73	— 1	59	—22
Canby, Fort, Wash T	74	45	75	45	86.4	48.5	60.2	40.2	56.8	33.5
Columbus, Fort, N. Y. H	90	59	89	57	82	45	78	36	67	22
Concho, Fort, Tex	104	65	98	66	98	43	96	35	87	10
David's Island, N. Y	93	56	90	53	83	44	82	32	66	21
Davis, Fort, Tex	97	58	97	53	94	37	87	37	81.6	25.1
Ellis, Fort, Mont	95	33	93	26	87	32	73	10	61	—27
Fred. Steele, Fort, Wyo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Garland, Fort, Colo	85	38	82	38	81	23	67	9	(1)	(1)
Gaston, Fort, Cal	105	44	100	43	98	39	78	34	66	28
Grant, Fort, Ariz	95.4	61.3	91.2	61.2	91.7	51	83.3	36.4	67.3	28.8
Hale, Fort, Dak	97	48	96	45	90	29	80	17	65	— 3
Hamilton, Fort, N. Y. H	92	54	90	52	84	42	73	35	76	21
Jefferson Barracks, Mo	98	59	97	59	92	42	86	35	72	18
Keogh, Fort, Mont	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Klamath, Fort, Oreg	92	32	90	35	92	20	74	9	65	11
Lapwai, Fort, Idaho	106	41	108	38	98	32	71	25	63	22
Leavenworth, Fort, Kans	99	58	93	54	92	42	85	34	73	16
Lewis, Fort, Colo	65.5	45	63.6	46	56.6	29	73	7	59	8
Lowell, Fort, Ariz	(1)	(1)	(1)	(1)	(1)	(1)	94	26	89	25
Lyon, Fort, Colo	(1)	(1)	101	51	92	35	86	20	76	7
Madison Barracks, N. Y	83	44	90	41	80	28	84	18	66	7
Maginnis, Fort, Mont	87	43	90	30	84	30	62	14	60	—16
Mason, Fort, Cal	86	56	86	50	84	50	70	48	67	42
McDermitt, Fort, Nev	111	62	100	62	94	52	69	29	64	18
McDowell, Fort, Ariz	108	64	113	66	111	53	97	32	86	20
McHenry, Fort, Md	92	58	89	60	78	45	82	38	69	31
Meade, Fort, Dak	98	35	98	38	94	27	76	14	71	7
Mitchell, Camp, Ga	(1)	(1)	96	(1)	95	(1)	91	(1)	78	(1)
Mojave, Fort, Ariz	112	63	112	72	111	61	96	46	84	34
Monroe, Fort, Va	95	65	93	60	82	58	83	45	75	25
Mount Vernon Barracks, Ala	99	66	99	61	96	53	98	39	84	27
Niagara, Fort, N. Y	86	50	89	48	83	36	78	29	67	20
Niobrara, Fort, Nebr	109	45	102	40	92	30	89	24	86	— 2
Pembina, Fort, Dak	93	39	86	38	86	11	76	10	57	—23
Plattsburg Barracks, N. Y	89	48	85	42	79	35	70	20	73	8
Preble, Fort, Me	88	57	84	51	73	42	75	28	62	18
Presidio, Cal	76	43	84	49	95	48	83	43	72	37
Randall, Fort, Dak	99	45	99	40	92	32	82	19	68	— 1
Reno, Fort, Ind. T	97	56	96	57	95	40	92	28	82	17
Robinson, Fort, Nebr	103	40	94	37	94	28	84	14	71	— 5
Saint Augustine, Fla	95	69	92	69	88	62	94	60	82	45
Shaw, Fort, Mont	94	30	87	36	83	28	60	5	58	—21
Sisseton, Fort, Dak	95	40	90	40	86	19	71	15	57	- 15
Snelling, Fort, Minn	98	48	96	42	85	22	75	21	59	Zero.
Spokane, Fort, Wash T	102	42	100	35	88	30	74	22	60	14
Sully, Fort, Dak	101	50	90	48	99	29	84	24	68	— 3
Totten, Fort, Dak	88	45	88	43	92	12	74	16	53	- 16
Townsend, Fort, Wash T	87	44	77	43	74	39	60	32	59	27
Union, Fort, N. Mex	90	44	85	42	86	27	75	15	71	5
Verde, Fort, Ariz	103	60	101	63	103	46	86	30	75.5	22
Warren, Fort, Mass	88	57	83	55	77	47	72	37	60	23
Washakie, Fort, Wyo	(1)	(1)	92	32	81	24	(1)	(1)	(1)	(1)
West Point, N. Y	95	50	89	46	87	33	83	27	(1)	(1)
Wingate, Fort, N. Mex	88	47	84	50	83	36	72	18	64	15
Yates, Fort, Dak	98	42	96	42	96	25	78	11	64	—10

[1] No record.

APPENDIX 44.

Fahrenheit) at military post hospitals, from July, 1883, *to June,* 1884, *inclusive.*

tering thermometer.]

1883.		1884.												
December.		January.		February.		March.		April.		May.		June.		Annual range.
Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
52	−31	40	−45	44	−35	60	−18	72	15	84	29	92	42	139
65	39	58	39	70	29	66	41	65	44	78	47	75	49	58
77	37	71	38	77	28	82	43	77	33	93	49	88	52	71
61.5	15	59.8	6	69.2	8.2	66.2	15.3	77	24.8	85.3	31	95.3	38.1	91
55	−24	45	−31	44	−40	55	−32	75	12	88	27	101	44	141
(1)	(1)	74	10	85	27	85	34	86	43	93	61	96	61	....
64	32	61	34	73	28	72	40	73	44	86	51	82	55	73
71	2	56	5	67	−19	63	15	77	25	78	26	81	37	109
68.5	25.5	67.5	1	68.7	18.5	72.5	32	85	25	101	40	103	51.5	102
44	−16	36	−32	38	−29	57	−28	69	17	74	29	91	36	123
46	− 7	44	−15	44	−39	47	Zero.	57	14	73	20	84	30	128
46	−34	44	−43	45	−43	58.8	−22.7	76	10	85.5	25.2	100	34	143
57	29.6	55	32.3	68	16	64.2	33.5	78.2	40.9	76	42.6	68	47.6	70.4
54	4	45	6	56	6	62	7	(1)	(1)	85	42	92	49	....
82	Zero.	73	5	82	17	89	26	95	32	95	44	100	53	104
52	− 4	47	4	54	3	61	4	67	30	86	39	98	44	97
75	12	73.1	6	76.2	20	77.1	30.1	80.1	27	87.9	40	97	52	91
55	−18	48	−17	50	−26	54	−14	70	20	82	20	93	30	122
(1)	(1)	(1)	(1)	(1)	(1)	55	− 2	68	12	80	16	93	36	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
55	29	62	26	74	20	72	33	80	38	95	36	90	42	85
65	23.6	59.4	18.8	72.7	20.3	66.2	30.2	77.7	32.4	86.7	38.6	99	53.1	80.2
55	−22	48	−32	49	−34	68	−15	75	21	86	32	(1)	(1)	....
50	Zero.	50	− 2	54	− 5	62	5	70	31	85	42	91	45	97
70	5	62	−22	66	1	70	5	80	30	85	42	94	50	120
(1)	(1)	45	−32	55	−38	68	−25	78	12	(1)	(1)	(1)	(1)	....
52	Zero.	45	− 5	56	−30	56	6	70	20	82	21	85	31	122
55	2	47	4	55	−24	64	19	80	31	92	36	(1)	(1)	....
65	4	57	−21	57	− 1	70	11	75.8	29	84	39	90.8	52	120
58	−14	50	−14	48	−21	51	− 1	60	13	71	22	84	35	105
76	28	78	12	86	20	86	33	91	34	(1)	(1)	(1)	(1)	....
68	2	66	− 7	69	−23	80	9	80	23	91	17	98	47	....
50	−18	41	−29	51	− 3	52	− 3	73	12	81	31	90	40	119
58	−14	48.1	−20.3	51.1	−28.2	53.1	−14.1	65.8	16.9	78.4	29.6	87.6	43.4	118.2
57	40	59	41	68	29	73	48	73	50	78	50	75	50	57
52	− 8	49	− 2	49	−18	58	22	56	31	62	35	84	40	129
78	29	71	23	85.3	23.7	79.8	36.5	92	37	102.2	43.5	113	50	93
55	10	50	6	64	8	62	13	77	32	87	45	81	51	86
69	−11	54	− 21	57	−28	66	−11	73	12	82	25	97	38	126
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
72	35	71	32	78	27	(1)	(1)	92	44	100	53	(1)	(1)	....
69	23	63	3	67	27	72	20	77	38	88	50	89	55	92
76	23	74	10	80	24	84	33	87	40	92	55	96	54	89
57	2	47	− 9	57	− 3	55	− 2	72	26	79	32	86	44	98
62	−14	50	−22	64	−38	70	−10	(1)	(1)	(1)	(1)	(1)	(1)	....
45	−35	34	−35	34	−37	39	−26	66	9	83	29	(1)	(1)	....
52	−19	45	−27	49	− 3	51	− 5	66	15	79	36	88	40	116
50	− 6	45	− 3	45	7	50	− 2	60	27	(1)	(1)	(1)	(1)	....
64	35	62	37	73	28	73	38	70	41	85	42	70	47	67
64	−18	48	−29	53	−29	70	−12	74	22	89	33	96	40	128
77	15	69	− 4	72	3	(1)	(1)	85	31	89	37	96	55.4	....
60	−11	51	−22	56	−39	(1)	(1)	76	10	88	26	(1)	(1)	....
79	30	77	22	83	42	85	40	86	45	90	62	91	63	73
57	− 9	51	−15	53	−32	55	−22	71	21	81	27	91	45	126
52	−27	45	−44	42	−29	46	−23	65	16	79	27	89	44	139
50	−24	43	−33	37	−25	61	−20	74	18	83	31	99	35	132
52	−12	51	5	49	−32	65	3	77	29	91	30	95	37	134
60	−16	52	−30	57	−30	72	− 6	75	20	88	33	99	47	131
40	−31	35	−39	38	−31	42	21	65	10	82	29	96	45	135
60	19	57	25	57	8	60	26	72	36	80	36	(1)	(1)	....
69	2	65	−13	67	−21	63	9	72	15	79	12	88	33	111
66	24.5	63	15.5	71.5	15	68.5	27.5	85	30	98.5	38	106.5	42	91.5
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	74	29	87	33	97	42	....
57	11	51	7	56	− 8	59	11	69	18	77	26	87	34	96
55	−31	42	−44	49	−38	56	−14	79	19	83	34	97	48	142

[1] No record.

APPENDIX 45.

Monthly and annual mean temperatures (in degrees Fahrenheit) at stations on the Central Pacific and Southern Pacific Railroads and connecting branches, for the year ending June 30, 1884, copied from the records on file at the office of the chief engineer, Central Pacific Railroad, by the observer at San Francisco, Cal.

[The daily means are obtained by dividing the sum of the 7 a. m., 2 p. m., and 9 p. m. observations by three, the monthly means by dividing the sum of the daily means by the number of days in the month.]

Stations.	1883.						1884.						Annual means.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Alta, Cal	78.4	71.2	70.4	50.5	47.2	44.4	43.2	39.4	43.2	47.0	58.0	61.3	54.5
Anaheim, Cal	74.3	75.9	77.7	67.3	62.0	51.8	57.0	60.4	63.3	65.0	69.2	71.5	66.3
Antioch, Cal	72.7	71.8	73.1	58.0	47.4	40.7	43.5	44.8	48.7	55.2	64.6	67.6	57.3
Auburn, Cal	78.2	75.2	72.0	55.7	50.0	45.0	45.3	43.8	48.7	51.9	62.1	63.5	57.6
Battle Mountain, Nev	78.8	78.0	65.7	44.4	39.0	29.5	26.9	21.0	40.1	45.7	61.9	66.2	49.8
Benson, Ariz	85.5	80.4	82.2	69.1	57.3	50.0	45.4	54.1	57.0	64.1	75.4	(1)	....
Beowawe, Nev	77.8	74.9	67.0	43.5	38.0	29.3	25.6	24.1	37.6	46.3	57.6	64.6	48.9
Bishop's Creek, Nev	(1)	(1)	(1)	(1)	(1)	33.9	(1)	(1)	45.4	57.4	65.8	69.9	....
Blue Creek, Utah	79.6	78.6	69.6	48.4	40.9	27.6	23.5	26.0	39.8	45.8	60.4	69.3	50.8
Boca, Cal	60.2	56.8	53.6	41.0	32.4	29.4	22.6	18.7	30.0	37.4	49.0	56.2	40.6
Borden, Cal	88.7	89.0	85.5	64.4	56.8	50.2	49.2	52.0	59.8	60.1	68.8	69.5	66.2
Brentwood, Cal	79.6	75.6	75.8	61.8	58.6	43.7	45.5	46.4	53.6	54.4	64.0	66.7	60.1
Brighton, Cal	76.9	74.6	74.2	60.4	51.5	45.8	47.2	48.4	54.0	57.8	66.9	68.3	60.5
Brown's, Nev	86.5	81.6	74.4	52.0	43.5	33.5	30.8	30.4	44.0	52.6	68.0	74.1	56.0
Byron, Cal	85.4	77.8	79.4	63.5	53.8	48.5	47.2	50.0	59.8	58.3	68.3	70.9	63.6
Caliente, Cal	82.9	86.4	80.9	57.7	53.4	(1)	47.7	49.5	54.8	55.2	70.0	70.9	....
Calistoga, Cal	75.7	70.7	72.4	60.1	47.4	42.0	45.3	45.6	50.3	55.2	64.8	67.2	58.1
Camp Wright, Cal	(1)	(1)	(1)	53.5	(1)	46.8	(1)	(1)	(1)	(1)	(1)	(1)	....
Carlin, Nev	74.2	68.9	60.9	39.8	31.5	25.0	17.9	17.9	34.2	42.5	55.4	62.9	44.3
Casa Grande, Ariz	93.4	89.5	88.7	73.7	65.5	56.0	53.2	54.6	59.1	69.1	80.5	88.6	72.7
Chico, Cal	91.1	86.7	79.2	60.0	51.1	45.5	46.6	44.4	53.8	60.7	71.2	70.2	63.4
Chualar, Cal	58.0	57.6	60.6	55.2	51.9	50.8	48.8	49.5	51.5	54.3	(2)	57.7	....
Cisco, Cal	69.7	62.5	64.1	43.2	37.7	37.2	32.8	27.5	31.2	34.3	48.4	51.0	44.6
Colfax, Cal	80.9	76.8	72.4	53.4	49.9	47.5	45.6	44.1	46.9	49.9	62.6	63.0	57.8
Colton, Cal	71.0	70.4	70.4	55.7	56.8	(2)	49.3	55.3	61.2	59.1	66.0	69.6	....
Corinne, Utah	84.9	80.9	77.3	48.6	35.9	28.1	22.9	26.5	39.2	49.5	61.4	72.5	52.8
Daggett, Ariz	(2)	88.1	85.1	67.9	60.0	49.4	46.2	48.1	50.3	56.4	66.9	77.3	....
Davis, Cal	83.6	74.8	74.6	63.8	52.4	44.9	44.6	49.2	57.2	61.5	74.5	74.2	62.9
Delano, Cal	88.7	83.8	82.5	62.1	49.1	37.4	44.8	49.0	47.2	53.5	(2)	70.2	....
Deming, N. Mex	82.4	82.5	77.4	69.0	57.8	49.1	42.8	48.0	57.7	61.4	69.8	77.5	64.6

Dunnigan, Cal	85.8	80.8	80.4	65.8	59.4	44.5	48.6	49.2	56.6	64.6	69.8	71.9	64.7
Elko, Nev	76.8	71.5	62.0	40.9	33.1	26.3	20.6	18.0	35.3	45.6	58.1	65.8	46.1
El Paso, Tex	84.3	84.9	76.5	65.2	49.5	46.0	39.5	41.4	46.4	51.8	64.8	(1)	....
Emigrant Gap, Cal	72.7	68.2	64.0	42.5	42.2	40.7	35.5	31.7	36.2	38.4	50.8	53.9	48.1
Farmington, Cal	79.2	71.2	75.5	58.6	49.2	45.1	45.4	48.2	52.6	57.9	67.0	70.5	60.0
Fenner, Cal	(1)	88.4	83.5	66.1	62.2	52.3	40.0	48.9	54.5	64.2	73.8	84.4	....
Fresno, Cal	86.8	82.8	80.3	59.0	50.2	51.6	46.7	49.5	54.3	59.4	70.9	78.5	68.8
Galt, Cal	80.1	78.5	75.2	60.3	52.2	48.8	47.7	48.8	56.6	60.0	66.7	75.4	62.5
Gilroy, Cal	72.0	68.5	69.6	60.2	49.8	47.3	46.5	48.4	54.1	56.8	63.0	65.2	58.4
Golconda, Nev	78.8	79.4	72.6	49.5	47.2	37.4	31.6	30.2	44.0	53.2	64.7	(1)	....
Goshen, Cal	89.9	86.2	83.6	63.8	52.8	45.5	47.8	53.1	56.3	59.4	70.0	71.1	64.9
Halleck, Nev	(1)	75.0	68.3	41.2	33.9	22.8	15.7	17.9	38.1	43.8	53.1	58.0	....
Hawley, Nev	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	55.9	(1)	(1)	(1)	....
Hawthorn, Nev	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	49.0	57.0	68.4	73.9	....
Hollister, Cal	66.0	67.3	66.3	57.6	51.6	50.8	49.6	53.3	58.1	56.0	62.9	67.4	58.5
Hotel del Monte, Cal	63.0	61.1	63.0	56.0	51.4	50.8	49.5	50.6	54.5	57.0	59.7	61.1	56.5
Hot Springs, Nev	74.0	71.2	63.5	44.5	45.2	27.3	28.9	26.5	40.5	48.9	65.2	60.7	49.7
Humboldt, Nev	77.0	73.5	62.1	40.3	35.1	27.8	28.2	25.9	40.4	48.8	60.4	67.8	48.9
Indio, Cal	94.1	(1)	86.8	74.6	63.8	60.9	52.3	56.4	61.7	67.9	76.0	82.5	....
Ione, Cal	76.6	75.7	75.8	65.2	55.2	49.6	52.4	53.2	55.9	66.7	69.7	68.7	68.7
Keeler, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	65.6	77.1	82.9	....
Keene, Cal	73.4	71.9	69.5	50.7	45.1	45.1	42.7	41.2	45.1	50.5	60.1	67.2	55.2
Kelton, Utah	77.7	76.4	66.2	43.5	34.7	24.8	20.2	23.8	37.1	45.4	59.9	70.8	48.4
Kingsburg, Cal	86.8	84.0	79.8	67.6	61.2	57.9	56.2	53.5	56.4	61.7	71.5	75.8	67.7
Knight's Landing, Cal	81.2	(1)	74.7	60.5	52.6	47.2	49.4	47.7	54.0	58.0	67.2	70.6	....
Lathrop, Cal	70.1	66.6	65.7	60.1	53.6	39.8	43.5	47.8	52.4	57.9	63.6	64.8	57.2
Lemoore, Cal	82.9	(1)	78.1	58.9	52.4	44.1	52.1	46.6	51.9	56.1	71.6	72.7	....
Livermore, Cal	69.7	68.4	69.5	59.7	44.6	51.2	49.7	49.2	54.1	54.4	59.8	62.2	57.7
Loma Prieta, Cal	(1)	(1)	(1)	(1)	(1)	(1)	46.0	41.9	49.9	54.5	60.4	(1)	....
Lordsburg, N. Mex	85.8	86.1	77.6	64.0	51.3	41.5	33.5	46.1	51.5	62.7	77.1	85.7	68.6
Los Angeles, Cal	73.2	75.3	76.7	66.8	65.5	61.9	59.2	60.1	62.0	68.8	66.3	70.0	66.7
Mammoth Tank, Cal	97.6	(1)	94.2	74.1	64.9	60.0	54.7	59.0	58.9	68.8	85.0	92.9	....
Maricopa, Ariz	90.7	92.8	84.1	65.5	59.2	53.0	48.0	55.8	59.5	68.1	81.9	89.6	70.7
Martinez, Cal	68.1	64.3	67.5	58.8	49.6	44.0	43.8	44.4	54.1	54.8	61.2	63.6	56.2
Marysville, Cal	80.9	(1)	80.0	61.3	50.0	44.6	43.7	48.0	55.8	67.0	69.1	70.8	....
Menlo Park, Cal	65.4	64.4	65.9	55.8	49.8	46.5	46.4	48.1	53.2	57.2	65.6	65.3	57.0
Merced, Cal	83.2	81.2	79.1	61.2	53.7	49.9	47.4	48.9	51.5	59.7	66.4	70.6	62.7
Modesto, Cal	78.9	77.8	77.6	60.5	51.1	44.5	40.4	46.4	52.2	56.2	65.5	67.6	59.9
Mojave, Cal	88.7	87.8	79.8	60.0	59.7	52.3	45.8	45.2	52.2	51.8	55.3	60.2	61.6
Monterey, Cal	65.4	62.5	65.2	57.4	52.8	51.9	50.1	50.6	55.9	57.9	60.8	62.5	57.8
Napa, Cal	74.0	71.6	67.5	64.0	55.8	54.0	48.8	52.0	52.8	51.3	68.2	69.2	60.8
Needles, Ariz	(1)	(1)	90.5	70.8	54.8	49.7	51.7	53.8	60.7	68.8	77.8	80.8	....
Newhall, Cal	74.9	76.2	73.5	56.2	53.0	51.2	48.4	48.9	51.4	46.0	62.9	68.1	59.2
Niles, Cal	66.9	65.2	67.9	56.9	51.3	46.5	46.6	49.2	53.1	54.3	60.9	62.5	56.7
Oakland, Cal	60.1	57.3	60.8	56.5	52.0	48.6	49.0	49.2	53.4	55.5	58.0	60.3	55.1
Ogden, Utah	81.9	78.3	69.1	46.1	37.1	29.1	24.4	28.4	41.4	50.7	64.3	75.9	52.2
Orland, Cal	87.5	85.3	80.8	63.4	56.9	47.5	49.2	50.1	55.4	59.4	72.4	73.3	65.1
Otego, Nev	78.7	76.3	67.5	42.2	31.4	25.2	19.6	19.3	33.0	44.9	54.9	64.9	46.5
Pajaro, Cal	62.0	59.8	61.4	55.3	53.2	51.2	48.8	52.9	52.8	54.6	60.3	62.7	56.2
Palisade, Nev	77.1	71.3	60.5	42.4	30.4	(1)	24.6	20.0	33.2	47.2	63.3	72.9	....

[1] No record.

[2] Record incomplete.

Monthly and annual mean temperatures (in degrees Fahrenheit) at stations on the Central Pacific and Southern Pacific Railroads and connecting branches for the year ending June 30, 1884, *&c.*—Continued.

Stations.	1883.						1884.						Annual means.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Pantano, Ariz	86.2	80.5	79.1	66.0	61.7	52.8	49.4	51.1	55.0	56.2	66.1	(1)	....
Petaluma, Cal	62.9	62.2	65.7	55.1	48.8	44.4	45.8	47.7	53.0	55.6	62.1	63.0	55.5
Pleasanton, Cal	71.5	74.7	71.2	62.5	53.0	44.2	44.6	46.0	51.1	57.6	63.7	63.7	58.6
Promontory, Utah	78.5	78.1	62.6	41.7	30.8	24.8	21.5	22.9	37.6	46.9	58.4	72.5	47,9
Ravenna, Cal	75.9	76.2	68.4	55.4	50.7	49.8	46.0	45.9	48.5	54.4	63.0	65.8	58.3
Red Bluff, Cal	87.3	82.6	78.8	62.1	56.1	48.1	45.4	45.2	50.7	55.6	69.6	71.3	62.7
Redding, Cal	81.7	76.8	67.9	65.2	54.5	(1)	(1)	(1)	(1)	59.9	63.9	67.8	....
Reno, Nev	76.1	71.7	65.9	45.2	37.8	28.9	27.5	25.7	37.1	41.9	54.5	62.3	47.8
Rocklin, Cal	78.7	74.9	70.7	58.8	50.3	45.7	48.6	47.3	53.0	57.6	66.9	69.2	60.1
Sacramento, Cal	77.2	73.3	72.9	58.1	50.1	45.0	46.7	47.7	54.3	59.9	68.6	70.4	60.4
Salinas City, Cal	62.5	61.9	62.0	56.0	50.8	49.4	46.4	49.3	53.9	56.4	63.3	63.9	56.3
San Fernando, Cal	73.2	74.8	74.8	63.1	61.0	56.9	52.7	52.9	53.6	57.8	63.1	(1)	....
San José, Cal	66.8	66.3	67.1	57.5	50.8	47.3	47.8	48.6	52.6	55.2	62.3	61.6	57.0
San Mateo, Cal	62.1	60.9	64.3	54.9	49.0	46.1	44.8	45.8	50.3	53.0	59.2	60.8	54.3
San Simon, Ariz	80.7	83.1	76.4	68.7	60.5	55.0	45.6	51.7	58.7	62.7	73.5	81.8	66.5
Santa Cruz, Cal	64.7	64.2	65.5	58.7	54.8	54.1	52.5	53.4	55.7	57.7	62.6	63.9	59.0
Soledad, Cal	67.5	65.6	69.0	60.6	58.5	48.7	45.4	49.7	53.2	58.4	65.8	65.9	58.6
Soquel, Cal	(1)	62.2	(1)	59.0	57.2	54.0	55.5	50.9	53.5	54.4	68.6	69.9	....
Soscol, Cal	(1)	(1)	63.4	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
South Vallejo, Cal	68.7	68.6	73.7	65.8	60.0	55.3	54.4	53.2	56.4	63.2	65.6	66.7	62.6
Spadra, Cal	72.4	75.3	75.8	62.2	60.8	57.3	58.2	54.8	56.2	62.0	65.4	70.7	63.8
Stockton, Cal	72.3	70.6	72.0	56.0	46.9	46.0	46.4	45.9	53.1	57.8	68.1	64.1	57.8
Suisun, Cal	81.5	75.8	78.2	53.9	41.7	24.6	37.4	50.5	56.2	59.6	65.6	60.5	58.5
Summit, Cal	59.2	56.2	52.5	36.0	30.7	29.6	26.3	25.1	29.5	31.6	39.7	44.2	38.4
Sumner, Cal	84.9	80.0	74.5	59.8	52.7	48.3	51.2	57.8	56.8	59.6	67.7	76.1	64.1
Tecoma, Nev	80.4	74.3	62.0	38.9	31.7	27.2	15.1	20.2	38.3	44.8	59.9	65.2	46.5
Tehama, Cal	83.1	76.3	73.1	54.8	46.6	45.4	45.8	47.0	54.2	56.1	(1)	68.9	....
Tehichipa, Cal	74.7	67.3	66.2	47.6	44.4	44.9	41.9	39.3	44.0	48.4	55.3	59.6	52.8
Tennant, Cal	70.8	72.2	71.9	60.2	53.2	52.4	49.3	50.1	52.7	56.4	64.8	64.8	59.9
Terrace, Utah	78.2	(1)	72.2	48.3	34.9	30.0	25.3	25.6	40.7	47.0	67.0	70.1	....
Texas, Hill, Ariz	99.1	99.8	92.0	71.7	(2)	54.8	52.5	57.5	62.3	69.4	80.2	88.9	....
Toano, Nev	79.8	77.4	67.0	42.0	33.1	26.8	21.4	22.4	35.4	42.2	52.0	60.8	46.7
Tracy, Cal	80.2	73.1	73.5	60.0	51.7	47.0	47.6	50.7	56.2	61.3	70.2	74.2	62.1
Truckee, Cal	68.1	61.8	57.8	43.5	33.9	29.8	25.6	21.9	30.6	39.7	50.8	56.0	43.3
Tucson, Ariz	98.0	95.1	81.5	70.7	57.0	56.4	49.7	63.0	65.2	71.8	75.5	85.8	72.5
Tulare, Cal	88.1	83.4	79.5	59.2	50.2	40.9	46.8	53.0	54.8	60.8	70.7	74.7	63.5
Turlock, Cal	81.5	85.2	79.7	67.4	57.8	55.6	47.0	50.3	55.1	69.1	75.4	75.3	66.6

Wadsworth, Nev	85.5	81.2	67.3	50.5	42.1	35.5	33.6	32.6	44.8	52.7	65.2	68.9	55.0
Wells, Nev	72.0	71.1	64.2	41.7	32.6	26.9	20.0	19.9	33.4	42.0	53.4	60.1	44.8
White Water, Cal	94.9	92.6	88.6	71.8	64.0	58.8	52.4	51.9	50.8	60.4	67.0	76.8	69.1
Wilcox, Ariz	84.7	79.5	74.8	60.8	51.7	46.7	42.8	49.8	51.3	59.5	67.8	77.9	62.2
Williams, Cal	84.0	(1)	77.4	62.1	51.4	42.4	46.9	47.2	52.6	58.7	71.2	69.9	....
Willows, Cal	85.8	81.9	81.0	63.8	55.2	45.4	47.4	46.0	58.9	58.2	64.7	76.6	63.8
Winnemucca, Nev	83.3	75.8	65.0	59.1	33.0	26.1	23.4	20.2	36.0	48.8	63.9	72.8	50.7
Woodland, Cal	78.8	75.5	75.5	63.2	54.7	42.0	46.6	45.6	54.2	56.1	66.5	69.8	60.7
Yuma, Ariz	92.5	93.6	88.9	70.5	64.3	58.8	56.6	58.9	60.9	67.4	77.9	(1)	....

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[1] No record.

[2] Record incomplete.

APPENDIX 46.

Maximum and minimum temperatures and annual range of temperature (in degrees Fahrenheit) at stations on the Central Pacific and Southern Pacific Railroads, and connecting branches, for the year ending June 30, 1884.

[Obtained from ordinary thermometers—highest and lowest observed. Copied from the records on file at the office of the chief engineer, Central Pacific Railroad, by the observer at San Francisco, Cal.]

Stations.	1883.												1884.												Annual range.
	July.		August.		September.		October.		November.		December.		January.		February.		March.		April.		May.		June.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Alta, Cal	96	64	90	62	98	52	68	38	70	30	70	20	60	30	70	16	60	28	68	30	80	46	86	44	82
Anaheim, Cal	94	66	102	62	107	60	86	48	86	44	82	48	72	42	89	40	90	36	80	50	92	54	90	54	71
Antioch, Cal	104	58	98	58	102	58	80	38	68	28	62	26	60	26	68	22	72	34	72	38	84	50	88	52	82
Auburn, Cal	100	61	99	54	95	52	79	42	72	32	69	29	65	31	73	20	70	33	78	40	84	50	88	50	80
Battle Mountain, Nev	100	66	100	58	90	40	68	21	62	16	52	—14	50	8	53	—30	65	24	72	30	85	42	90	50	180
Benson, Ariz	103	72	99	73	98	66	87	50	79	35	74	30	67	20	78	30	78	38	84	48	91	54	(1)	(1)	.....
Beowawe, Nev	98	63	98	58	92	41	63	26	64	15	46	—20	42	—19	50	—23	54	22	72	33	80	37	87	50	121
Bishop's Creek, Nev	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	68	15	(1)	(1)	(1)	(1)	63	32	85	85	90	45	85	63	.....
Blue Creek, Utah	103	66	102	58	93	50	70	30	68	20	48	8	48	7	49	—15	54	25	60	34	84	83	92	42	118
Boca, Cal	90	35	88	30	85	26	68	12	68	— 5	65	Zero	50	—14	45	—39	45	2	55	20	68	30	80	40	129
Borden, Cal	114	60	114	61	109	55	98	40	110	30	86	26	80	26	97	28	101	34	94	40	104	45	102	45	88
Brentwood, Cal	108	64	98	58	98	63	77	46	68	29	61	24	61	28	67	22	76	35	71	42	84	49	90	53	86
Brighton, Cal	105	61	104	58	104	55	84	42	79	30	67	25	71	30	74	25	80	41	80	47	92	55	95	55	80
Brown's, Nev	101	70	99	62	92	54	78	37	66	19	62	11	51	10	58	—16	62	28	74	34	95	52	96	54	117
Byron, Cal	111	60	109	56	102	66	80	46	74	30	64	26	62	30	74	26	76	40	76	42	90	50	94	56	85
Caliente, Cal	100	62	102	70	98	62	75	42	72	32	(1)	(1)	70	31	70	28	74	32	70	42	90	50	94	50	.....
Calistoga, Cal	105	55	102	48	104	49	97	34	78	20	64	23	79	26	76	17	75	31	75	40	90	51	92	55	88
Camp Wright, Cal	(1)	(1)	(1)	(1)	(1)	(1)	77	37	(1)	(1)	65	35	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	.....
Carlin, Nev	100	60	92	50	90	36	60	14	60	— 2	44	—30	44	—22	44	—34	54	20	66	30	80	34	90	44	134
Casa Grande, Ariz	106	83	105	80	108	73	99	54	86	44	70	39	70	32	73	28	75	45	86	52	102	56	113	68	85
Chico, Cal	110	74	108	70	107	62	88	40	75	30	63	30	60	30	78	20	76	34	85	48	85	56	97	54	90
Chualar, Cal	80	40	80	44	103	44	75	40	80	39	75	32	70	26	85	31	70	37	80	40	98	40	80	40	77
Cisco, Cal	86	54	84	48	84	42	64	26	58	10	52	12	44	16	44	Zero	44	16	42	25	53	32	76	35	86
Colfax, Cal	105	67	101	58	100	50	84	40	74	34	77	32	62	34	75	22	68	33	72	36	86	40	90	46	83
Colton, Cal	104	50	106	48	104	48	85	39	80	40	(2)	(2)	74	31	93	30	90	44	80	43	92	48	103	48	.....
Corinne, Utah	105	70	105	65	100	55	64	30	63	12	51	Zero	49	— 3	53	—15	57	24	76	34	84	39	93	56	120
Daggett, Ariz	(2)	(2)	103	73	101	68	85	53	80	30	70	28	70	20	70	20	70	32	80	38	89	53	99	62	.....
Davis, Cal	112	68	105	56	108	54	92	44	84	30	72	32	62	27	86	28	88	42	86	46	96	49	98	52	85
Delano, Cal	112	70	104	70	102	64	82	42	68	40	60	22	62	28	60	36	56	40	74	46	(2)	(2)	97	(2)	.....
Deming, N. Mex	97	70	93	71	92	64	86	50	78	44	75	18	60	20	60	25	81	44	75	50	89	50	98	61	80

Dunnigan, Cal	112	65	115	60	103	60	84	50	84	35	62	28	69	30	82	30	90	37	88	41	92	57	92	48	87
Elko, Nev	105	63	98	50	91	35	66	22	68	-3	48	-32	48	-25	50	-35	57	15	70	31	88	39	90	50	140
El Paso, Tex	108	70	106	62	100	50	85	32	80	28	78	18	65	8	72	20	78	28	90	30	100	35	(1)	(1)	.....
Emigrant Gap, Cal	90	58	88	50	84	46	61	30	64	22	60	20	51	26	60	6	60	22	58	29	66	40	78	38	84
Farmington, Cal	108	59	107	57	105	55	82	41	70	29	59	27	60	27	68	22	69	40	79	46	90	57	94	55	86
Fenner, Cal	(1)	(1)	102	77	104	69	83	47	79	48	68	32	67	29	79	22	71	40	87	45	98	50	112	65	.....
Fresno, Cal	109	64	110	62	109	60	80	45	66	32	70	30	66	30	72	29	76	38	81	46	95	52	102	50	81
Galt, Cal	107	63	106	60	108	57	85	40	75	28	78	27	65	30	68	22	72	40	77	45	90	50	93	57	86
Gilroy, Cal	102	54	102	51	102	50	86	44	75	27	72	24	68	28	75	23	75	40	78	43	88	50	93	53	79
Golconda, Nev	99	62	102	59	100	45	75	29	75	15	68	-7	55	-6	71	-17	75	31	80	37	91	45	(1)	(1)	.....
Goshen, Cal	112	65	110	64	110	60	98	45	74	30	72	28	70	20	78	37	78	38	84	40	98	50	103	59	92
Halleck, Nev	(1)	(1)	104	49	100	26	70	13	62	-5	42	-41	40	-35	52	-45	58	8	64	28	79	39	88	39	.....
Hawley, Nev	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	72	36	(1)	(1)	(1)	(1)	(1)	(1)	.....
Hawthorn, Nev	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	68	36	78	40	91	54	92	56	.....
Hollister, Cal	100	52	101	50	102	46	86	40	78	32	72	30	64	30	78	28	78	37	80	37	89	52	90	53	74
Hotel del Monte, Cal	84	55	75	50	85	48	73	37	71	32	73	33	64	31	74	28	70	40	71	45	78	50	69	56	57
Hot Springs, Nev	104	50	103	46	100	40	64	22	62	Zero	51	Zero	50	2	58	-32	64	26	75	30	90	32	95	32	136
Humboldt, Nev	97	61	97	50	85	40	60	24	54	11	48	1	52	1	70	-22	65	20	57	39	72	45	98	50	119
Indio, Cal	110	75	(1)	(1)	114	63	98	47	96	34	90	40	78	32	88	32	81	49	96	51	103	60	106	65	.....
Ione, Cal	108	50	109	60	105	60	94	48	89	29	79	29	83	29	81	25	89	38	90	46	94	50	99	40	84
Keeler, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	86	50	98	54	105	60	.....
Keene, Cal	98	50	94	47	95	46	75	30	75	24	70	27	58	22	72	16	65	28	75	30	86	41	88	41	82
Kelton, Utah	108	58	96	60	92	42	74	25	56	10	46	Zero	46	-8	54	-20	54	24	68	(1)	88	40	92	52	.....
Kingsburg, Cal	105	68	112	61	103	65	87	45	79	44	85	31	82	33	90	32	90	39	90	43	98	50	96	61	81
Knight's Landing, Cal	106	60	(1)	(1)	103	54	84	44	78	31	68	27	68	30	75	25	70	40	79	48	86	54	87	56	.....
Lathrop, Cal	103	48	106	46	103	45	77	49	70	33	57	28	60	27	56	36	70	38	76	46	84	52	87	52	79
Lemoore, Cal	110	55	(1)	(1)	104	60	80	38	75	35	60	33	73	30	64	26	66	34	84	44	95	52	95	52	.....
Livermore, Cal	102	52	102	50	100	32	88	40	80	34	82	24	70	28	84	26	76	32	78	42	85	47	88	53	78
Loma Prieta, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	60	30	77	27	75	32	73	39	85	46	(1)	(1)	.....
Lordsburg, N. Mex	100	75	100	70	95	60	80	38	75	30	70	28	65	8	80	20	78	30	84	42	95	55	105	70	97
Los Angeles, Cal	89	62	90	63	103	60	87	56	92	47	88	43	86	43	89	45	81	46	78	54	78	53	96	58	60
Mammoth Tank, Cal	121	75	(1)	(1)	122	72	97	50	96	42	86	40	74	33	85	30	86	48	101	52	113	62	128	78	.....
Maricopa, Ariz	112	74	110	80	106	67	98	41	93	34	68	38	72	14	67	40	76	46	89	40	100	60	115	72	101
Martinez, Cal	92	54	85	56	95	56	78	42	68	30	60	30	65	28	65	26	68	40	73	44	80	50	80	52	69
Marysville, Cal	106	60	(1)	(1)	107	50	78	49	68	32	64	25	60	30	79	25	75	38	89	49	90	51	94	52	.....
Menlo Park, Cal	96	54	96	52	99	48	80	37	72	29	66	27	60	28	74	24	72	36	76	45	86	54	80	56	75
Merced, Cal	111	60	106	58	104	52	92	40	76	30	66	30	66	28	70	26	72	38	80	44	88	50	96	48	85
Modesto, Cal	112	62	110	60	104	55	85	45	68	30	67	30	65	30	71	29	73	39	81	49	91	50	95	50	83
Mojave, Cal	100	70	98	70	96	70	72	48	78	49	67	30	86	26	73	20	80	30	85	29	82	30	90	40	80
Monterey, Cal	84	52	78	50	88	54	74	40	70	32	74	31	66	30	74	25	72	37	72	42	79	52	70	56	68
Napa, Cal	104	65	100	51	101	49	93	38	81	24	83	23	71	23	74	18	69	32	81	41	85	47	94	52	86
Needles, Ariz	(1)	(1)	(1)	(1)	112	68	90	54	74	48	68	30	67	32	78	26	76	44	90	50	100	57	110	68	.....
Newhall, Cal	98	60	104	60	104	54	90	36	82	30	76	30	76	22	79	28	70	32	80	40	88	45	102	51	82
Niles, Cal	96	55	94	55	99	50	80	42	71	38	64	30	65	32	75	32	78	40	72	41	92	43	87	51	69
Oakland, Cal	70	54	68	51	78	51	70	42	60	39	60	34	58	38	72	32	68	44	70	44	72	49	76	54	46
Ogden, Utah	105	58	102	44	94	42	72	26	66	15	49	-3	52	-6	54	-24	60	26	82	34	90	35	100	50	129
Orland, Cal	113	66	110	68	110	66	88	48	78	38	76	28	70	34	78	26	78	30	84	44	98	56	98	54	87
Otego, Nev	96	68	104	62	88	50	64	28	48	-4	42	-12	42	-10	44	-22	46	10	64	32	74	32	88	44	126
Pajaro, Cal	88	52	71	52	98	52	78	32	80	33	75	30	70	35	80	32	78	32	76	36	88	50	80	54	68
Palisade, Nev	99	64	96	46	90	32	62	22	51	3	(1)	(1)	46	-16	49	-30	56	20	76	30	88	35	94	46	.....

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[1] No record.

[2] Record incomplete.

Maximum and minimum temperatures and annual range of temperature (in degrees Fahrenheit) at stations on the Central Pacific and Southern Pacific Railroads, and connecting branches, for the year ending June 30, 1884—Continued.

Stations.	1883.												1884.												Annual range.
	July.		August.		September.		October.		November.		December.		January.		February.		March.		April.		May.		June.		
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min	Max.	Min.	Max.	Min.	Max.	Min.	
	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Pantano, Ariz	104	70	103	68	103	61	93	45	86	40	80	32	85	34	74	35	80	37	77	45	90	40	(1)	(1)	.....
Petaluma, Cal	92	54	90	48	98	48	84	37	72	24	64	26	62	24	78	22	73	38	78	46	94	50	82	52	76
Pleasanton, Cal	94	54	95	55	95	53	87	45	76	27	75	22	68	28	70	22	73	34	79	41	92	50	85	47	73
Promontory, Utah	104	59	104	57	94	32	65	21	52	Zero.	50	—10	48	— 7	55	—32	55	22	75	35	88	31	100	45	136
Ravenna, Cal	103	50	104	50	104	45	84	35	80	26	82	22	64	20	74	26	68	32	78	38	92	50	100	50	84
Red Bluff, Cal	110	68	104	62	110	62	86	46	86	36	72	22	78	30	76	26	74	36	76	46	90	48	96	53	88
Redding, Cal	106	64	101	55	103	50	82	50	73	33	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	75	50	76	50	90	57	.....
Reno, Nev	98	60	92	54	86	45	67	30	61	19	50	14	49	2	50	—14	60	22	59	32	76	36	84	44	112
Rocklin, Cal	104	60	101	55	98	52	84	43	70	31	67	27	64	30	75	22	70	39	74	44	88	53	90	57	82
Sacramento, Cal	95	63	93	60	99	57	80	42	68	32	62	29	58	33	70	26	70	39	75	50	85	56	89	57	73
Salinas City, Cal	76	54	72	56	105	52	68	42	64	32	64	30	62	30	65	27	68	40	68	46	80	52	78	56	78
San Fernando, Cal	96	59	100	56	104	59	89	50	81	42	75	40	71	30	86	35	70	40	76	42	88	55	(1)	(1)	...
San José, Cal	92	54	92	53	96	52	81	41	71	30	63	29	70	30	71	28	72	39	71	44	81	48	80	52	68
San Mateo, Cal	91	52	90	50	96	50	78	38	68	31	62	30	59	31	68	28	65	38	68	43	80	50	74	54	68
San Simon, Ariz	108	65	103	64	100	54	88	40	85	30	80	28	69	20	74	20	78	32	82	48	94	48	102	64	88
Santa Cruz, Cal	82	51	88	51	98	48	83	41	78	36	77	39	68	36	76	32	79	38	79	41	80	51	82	58	66
Soledad, Cal	102	52	102	52	108	52	88	36	74	24	76	30	66	26	76	26	80	34	78	44	90	50	84	54	84
Soquel, Cal	(1)	(1)	82	52	(1)	(1)	98	44	84	32	80	32	78	38	76	28	74	38	70	40	82	50	88	50	.....
Soscol, Cal	(1)	(1)	(1)	(1)	96	50	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(4)	....
South Vallejo, Cal	90	57	86	51	98	61	79	41	77	40	78	32	75	39	70	35	71	47	74	46	83	53	82	55	66
Spadra, Cal	96	58	103	53	108	57	89	48	86	40	80	36	68	30	93	32	80	43	87	46	94	50	96	56	78
Stockton, Cal	100	56	98	54	90	54	76	40	64	30	59	34	60	32	65	26	62	40	71	46	80	52	84	54	74
Suisun, Cal	104	60	98	60	98	60	87	30	62	19	56	18	62	18	78	26	80	39	84	46	94	50	88	56	86
Summit, Cal	74	40	75	42	72	32	46	28	42	8	40	— 6	36	16	43	— 7	45	11	42	20	50	30	60	32	82
Sumner, Cal	112	60	108	63	100	59	90	43	75	30	70	25	78	37	76	40	80	39	70	52	94	50	98	56	87
Tecoma, Nev	103	58	98	46	92	38	62	18	52	— 9	57	—11	45	—15	55	—26	60	20	68	26	82	32	90	45	129
Tehama, Cal	106	64	104	64	105	58	70	38	68	28	68	26	60	32	80	30	72	36	78	42	(1)	(1)	100	50	.....
Tehichipa, Cal	100	50	98	42	94	46	76	28	68	27	61	26	58	20	60	9	60	28	64	30	79	35	81	47	91
Tennant, Cal	102	54	102	52	101	44	86	35	80	28	80	29	66	28	79	25	78	34	79	40	86	48	84	48	77
Terrace, Utah	104	50	(1)	(1)	96	44	73	28	57	12	47	5	50	— 4	60	—20	61	22	62	34	92	50	93	54	.....
Texas Hill, Ariz	115	60	119	82	118	60	98	42	(2)	(2)	77	30	74	28	88	30	85	49	98	50	108	56	118	67	....
Toano, Nev	96	66	96	65	90	40	60	30	55	10	48	—18	46	—18	50	—22	52	28	62	30	74	35	88	38	120
Tracy, Cal	112	50	102	50	102	50	80	41	74	26	64	28	64	28	76	28	80	40	80	46	90	56	97	56	86
Truckee, Cal	98	49	87	41	87	39	69	26	58	7	50	9	50	— 1	44	—26	47	8	58	23	72	32	81	42	119
Tucson, Ariz	108	78	107	75	104	65	98	57	76	36	74	32	79	31	88	41	86	45	90	56	98	51	109	70	78
Tulare, Cal	110	65	110	62	108	60	76	39	69	32	56	26	65	31	72	32	71	41	98	50	98	58	100	60	84

Turlock, Cal	110	62	113	64	109	62	96	38	82	24	91	24	72	25	79	22	83	32	94	42	96	58	94	53	91
Wadsworth, Nev	102	72	98	52	92	40	70	36	68	16	56	14	58	8	60	—10	64	28	72	40	84	50	94	50	112
Wells, Nev	96	48	94	48	90	44	60	26	53	— 2	48	—28	46	—12	42	—22	50	12	62	22	78	32	82	34	124
White Water, Cal	114	81	113	80	115	61	104	45	91	38	84	36	72	39	85	31	70	39	84	47	102	50	107	54	84
Willcox, Ariz	102	65	97	65	95	50	83	34	81	24	77	16	72	10	85	22	80	27	81	39	92	44	104	58	94
Williams, Cal	114	69	(1)	(1)	105	58	78	46	73	28	63	23	64	33	80	26	78	34	76	48	95	58	93	56	.....
Willows, Cal	113	68	103	62	108	61	85	49	72	37	69	33	62	32	67	32	81	35	79	36	90	40	107	43	80
Winnemucca, Nev	101	72	96	60	87	49	75	42	56	12	55	—10	50	— 5	48	—27	65	22	78	30	97	44	99	50	128
Woodland, Cal	106	60	103	50	103	58	86	50	70	34	65	29	66	30	72	29	69	30	74	46	85	56	94	58	77
Yuma, Ariz	105	86	107	85	105	69	94	50	86	46	76	45	69	44	82	37	81	43	95	45	98	63	(1)	(1)	.....

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[1] No record.

[2] Record incomplete.

APPENDIX 47.

Table showing the mean of the maximum and minimum temperatures (in degrees Fahrenheit) at the special cotton-region stations of the Signal Service, United States Army, for the months July to October, 1883, and April to June, 1884, both inclusive.

[These means are obtained by dividing the sum of the readings of the self-registering thermometers by the number of observations taken—one daily, at 5 p. m.]

Stations.	1883.								1884.					
	July.		August.		September.		October.		April.		May.		June.	
	Mean.		Mean.		Mean.		Mean.		Mean.		Mean.		Mean.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Wilmington, N. C.:	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Cheraw, S. C	96.2	68.7	91.2	66.5	82.5	59.9	75	54	71.0	44.7	86.4	58.4	87.7	61.6
Florence, S. C	94.8	70.2	94.9	68.4	83.5	62.7	76.3	56.3	72.5	48.3	86.8	61.1	86.5	63.6
Goldsborough, N. C	91.8	71.5	87.4	68.1	80.1	63.1	72.8	55.8	70.1	49.0	81.7	60.7	84.1	64.3
Lumberton, N. C	94.3	70.1	89.7	67.2	81.4	61.3	74.3	55.5	71.7	46.6	85.6	59.7	85.3	62.3
New Berne, N. C	....	....	....	....	....	....	....	....	[1]70.4	[1]47.7	83.7	59.1	86.1	62.8
Raleigh, N. C	....	....	....	....	....	....	....	....	[2]71.7	[2]48.4	72.5	56.9	84.5	61.7
Salisbury, N. C	96.4	66.5	92	61.6	81.2	55.7	(3)	(3)	68.5	38.9	82.0	51.9	85.4	57.8
Wadesborough, N. C	93	71	86.1	67	82.4	58.1	(3)	(3)	71.1	47.1	85.4	60.0	84.3	62.4
Weldon, N. C	91.6	69.4	87.2	65.4	79	61.6	(3)	(3)	66.1	44.0	80.6	57.1	84.4	61.7
Charleston, S. C.:														
Branchville, S. C	91.1	72.3	88.5	64.9	83.8	64.3	76.8	57.8	70.3	50.5	86.4	63.3	84.5	65.0
Hardeeville, S. C	95.8	70.4	91.5	68.5	86.5	62.2	80.5	58.6	76.3	51.0	88.0	61.7	85.8	64.4
Jacksonborough, S. C	94.7	70.9	89.3	71.3	84	64	78.4	62.7	73.6	55.7	85.8	61.5	86.1	67.7
Kingstree, S. C	94.3	68	90.6	66.6	83.8	56	75.6	51.7	73.5	46.5	87.2	59.7	87.1	62.8
Saint George's, S. C	96	70	91	68	84.4	62.8	78.4	58.6	74.5	48.3	87.9	60.1	85.7	62.5
Saint Matthew's, S. C	95	72	90.7	69.8	84	56	76	48	75.1	49.7	85.8	62.8	84.5	62.9
Yemassee, S. C	94.4	75.8	90.5	68.8	84.5	60.8	79.4	59	74.8	50.2	86.9	63.8	83.9	63.9
Augusta, Ga.:														
Allendale, S. C	97	78	91.5	78.2	84.6	78.2	78.8	55	69.4	48.6	86.4	54.1	84.8	55.7
Athens, Ga	100	72.7	93.4	67.6	86.9	61.2	77.5	57.2	72.4	47.5	89.8	60.3	88.2	62.0
Batesburg, S. C	....	....	....	....	....	....	....	....	(3)	(3)	(4)	(4)	85.2	63.3
Blackville, S. C	....	....	....	....	....	....	....	....	(3)	(3)	(4)	(4)	85.3	65.6
Camak, Ga	....	....	....	....	....	....	....	....	(3)	(3)	(4)	(4)	86.0	63.1
Chester, S. C	92.9	69.5	92	66.4	(3)	(3)	74	57	70.5	46.7	83.7	60.5	84.5	63.8
Columbia, S. C	92	72	89	69	81	62	74.4	56.5	71.6	48.0	83.9	61.9	84.1	64.5
Covington, Ga	93.7	83	92	71	85.8	66.1	[5]80.9	[5]55	....	....	....	....	....	....
Greenwood, S. C	....	....	....	....	....	....	....	....	(3)	(3)	(4)	(4)	81.6	63.1
Union Point, Ga	93.1	69.2	88.1	66.5	83	60.2	76.1	55.6	70.4	44.7	82.8	53.8	(3)	(3)
Washington, Ga	....	....	....	....	....	....	....	....	( )	(3)	[2]89.1	[2]61.2	86.9	63.6
Waynesborough, Ga	....	....	....	....	....	....	....	....	(3)	(3)	(4)	(4)	89.3	68.5
Savannah, Ga.:														
Albany, Ga	96.7	73.7	93.1	72.1	87.5	65.9	85.1	61.8	76.5	53.1	88.9	65.0	85.1	67.8
Allapaha, Ga	95.9	75.8	85.5	68.3	87	61.8	84	56.3	77.8	52.6	88.1	62.7	85.6	61.9
Bainbridge, Ga	94.4	72.9	92.7	69.1	87.3	72.8	85.8	70.5	78.2	69.4	87.1	69.3	83.8	67.4
Eastman, Ga	99.6	73.4	95.7	75.6	87.4	66	(3)	(3)	75.5	(4)	87.8	71.0	85.6	59.2
Fernandina, Fla	89.8	74.8	85.8	72.8	80.4	69.2	79.9	70	77.0	57.5	84.2	64.1	83.6	67.4
Fort Gaines, Ga	96.2	70.7	[2]92.2	[2]69.4	86.8	62.8	83.8	58.7	77.0	58.0	86.9	63.1	85.8	65.4
Jesup, Ga	100.3	72.9	91	69.3	82.6	64.2	81.7	58.4	77.7	52.0	89.1	62.4	86.0	64.8
Live Oak, Fla	93.4	70.3	91.4	68.7	89.6	62.4	86.8	60.4	81.9	51.3	90.7	61.0	88.7	63.4
Millen, Ga	98	70.5	93	68	86.7	62.3	81	58.1	76.2	49.1	88.9	61.1	86.1	63.7
Quitman, Ga	97.2	71.9	93.7	70.2	88.8	64.6	85.5	61.5	79.6	54.2	90.2	64.3	86.0	65.5
Smithville, Ga	98.2	75.3	94.8	73.2	88	62.2	85.2	58.4	77.1	50.4	89.6	61.2	84.9	65.2
Thomasville, Ga	94.6	72.5	91.3	71.9	86.6	65.4	85.8	64.4	77.4	54.6	86.3	64.8	82.4	67.3
Waldo, Fla	92.9	72	92	70.5	87.9	66.6	85.7	64.8	83.2	58.0	92.8	64.0	87.7	64.8
Way Cross, Ga	100.4	68.8	95.1	68.9	92.6	64.8	78.9	65.2	75.1	61.3	91.9	76.3	90.3	65.3
Vicksburg, Miss:														
Edwards, Miss	93.7	73.7	92.5	73.9	89	60.4	81.3	61.8	73.6	52.8	81.5	62.8	88.0	68.5
Jackson, Miss	[6]94.5	73.6	92.6	68.4	90.3	59.9	82.7	64.9	76.1	52.8	83.3	61.8	89.6	66.6
Lake, Miss	89.7	68.1	92.9	66.4	89.1	57.6	80.5	56.3	75.8	50.3	82.3	59.6	86.8	64.8
Monroe, La	92.6	72.7	92.2	69.4	87.9	60.7	80.7	61	74.5	54.3	81.0	62.8	86.9	69.0
Atlanta, Ga.:														
Anderson, S. C	....	....	....	....	....	....	....	....	(3)	(3)	(4)	(4)	83.9	54.2
Calhoun, Ga	92.9	67.1	87.9	64.9	84.1	59.1	[5]73.2	[5]56.1	....	....	....	....	....	....
Cartersville, Ga	95	67	95.6	66.6	84.3	60.6	77.2	57.2	68.4	44.2	83.3	57.7	84.5	63.2
Columbus, Ga	92	73	91	66	85	65	78	61	73.5	51.8	85.0	64.4	83.1	66.2
Dalton, Ga	93	75	88	68	85	61	75.6	56.7	69.5	46.4	82.0	58.2	84.0	63.4
Gainesville, Ga	92.3	67.7	86.9	66.3	80	61	76	60	68.4	51.0	78.9	64.0	78.2	63.1
Greenville, S. C	....	....	....	....	....	....	....	....	70.1	44.3	85.1	57.1	84.6	61.2

[1] 19 days only. [2] 16 days only. [3] No record. [4] Record incomplete. [5] Station closed. [6] 17 days only.

Mean of the maximum and minimum temperatures, &c.—Continued.

Stations.	1883.								1884.					
	July.		August.		September.		October.		April.		May.		June.	
	Mean.		Mean.		Mean.		Mean.		Mean.		Mean.		Mean.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Atlanta, Ga.:	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Griffin, Ga	92.4	71.5	87	68.4	82.4	63.1	78	58.4	70.9	49.5	82.9	62.6	80.2	64.6
Macon, Ga	96.7	78	90	69.9	85.4	62.8	81.1	58.9	75.0	50.6	87.4	62.5	85.0	65.3
Madison, Ga	96	67	91	60	88	52	83	49	70.1	41.6	(1)	.....	.....	.....
Newnan, Ga	103.7	79.8	88.2	70.5	83.2	65.5	75.2	53.3	71.4	50.8	84.7	61.8	82.8	62.7
Spartanburg, S. C	94	68	90	65	82	59	74	53	73.7	45.2	84.8	57.1	82.5	58.4
Toccoa, Ga	96.4	67.3	90.2	64.9	83.8	59.6	74.3	54.3	69.9	46.4	85.2	57.2	82.3	61.2
West Point, Ga	93.3	70.4	91.5	68.1	85.7	61.4	82.8	58	73.2	50.3	86.2	61.2	83.6	65.5
Montgomery, Ala.:														
Birmingham, Ala	95.2	69.4	91.7	67.7	(2)	(2)	79.2	56.9	72.2	47.0	84.3	53.1	84.3	61.4
Calera, Ala	100.2	65.9	95.3	65.1	90.2	57.6	78.8	48.6	76.5	47.5	89.8	57.7	87.2	61.5
Demopolis, Ala	96	70.1	94.2	69.3	91.8	62.9	83.4	63	(3)	(3)	(1)	.....	.....	.....
Eufaula, Ala	.....	.....	.....	.....	.....	.....	.....	.....	(2)	(2)	[4]87.5	[4]64.4	85.3	66.8
Fort Deposit, Ala	.....	.....	.....	.....	.....	.....	.....	.....	(2)	(2)	[5]85.8	[5]68.5	83.1	65.7
Greenville, Ala	93.9	70.7	91.9	69.7	88	58.3	86.9	60.6	75.9	53.4	85.7	60.9	86.7	65.0
Marion, Ala	.....	.....	.....	.....	.....	.....	.....	.....	(2)	(2)	89.2	62.0	87.8	66.1
Opelika, Ala	95.8	70.3	91.5	72	85.1	63	80	58.4	73.6	50.0	86.5	60.7	83.3	63.1
Pine Apple, Ala	97.3	66.4	93.8	67.3	90.3	62.8	85.1	57.2	77.5	51.7	86.2	60.5	86.2	65.7
Selma, Ala	94.1	70.6	91.4	70.2	88.4	68.2	82.5	60.1	74.3	[4]44.1	83.5	51.7	83.5	56.6
Talladega, Ala	93.8	68	90.3	67.1	90.7	58.5	87.7	54.6	(3)	(3)	(1)	.....	.....	.....
Tuscaloosa, Ala	96	67.5	92.1	62.6	83.5	52.4	81.2	[1]54.8	.....	.....	.....	.....	.....	.....
Uniontown, Ala	88.4	71.8	92.4	71	89.2	64.6	82.9	62.7	(3)	(3)	(1)	.....	.....	.....
Mobile, Ala.:														
Aberdeen, Miss	93.2	68.8	[4]89.7	67	87	59.2	76.3	55.8	68.3	50.4	80.9	59.7	81.6	65.5
Columbus, Miss	98.8	70.3	94.4	68.9	89.9	60.8	81.8	59.3	75.5	50.7	86.3	60.3	88.6	66.5
Evergreen, Ala	.....	.....	.....	.....	.....	.....	.....	.....	80.3	53.3	89.5	60.6	88.8	63.9
Livingston, Ala	.....	.....	.....	.....	.....	.....	.....	.....	76.5	51.8	86.8	61.9	89.2	66.8
Macon, Miss	102.3	70.9	92.7	68.7	92.3	61.7	83	58.8	75.4	51.2	85.1	61.6	88.7	68.5
Meridian, Miss	98.3	69.8	95.1	67.2	90.6	65.7	83.7	58.8	76.8	51.5	86.3	61.5	88.7	66.4
Okalona, Miss	97.8	70.8	93.1	67	91.8	59.3	80.2	55.8	74.1	47.3	84.8	59.2	89.3	64.2
State Line, Miss	99.1	71.9	97	69.9	92.9	63.8	89.7	63.3	.....	.....	.....	.....	.....	.....
Waynesborough, Miss	99.4	70	(2)	(2)	96	57	(2)	(2)	77.8	52.4	85.0	61.2	87.4	66.7
New Orleans, La.:														
Alexandria, La	96.3	73.2	94.3	68	88.5	61	80.3	44	(2)	(2)	87.6	54.6	92.4	59.2
Amite City, La	96	70	96.3	69	(2)	(2)	90.8	63.2	75.4	60.5	80.3	69.0	89.2	68.5
Brookhaven, Miss	94.5	70.8	91.3	68.8	87.3	61.1	81.5	60.5	75.5	58.2	84.1	62.6	87.9	67.0
Cheneyville, La	94.5	71.2	93	67.9	88	59	86.3	60.4	77.3	56.5	84.8	62.7	89.7	67.2
Coushatta Chute, La	93.4	71.7	97.6	68.5	88.4	61	81.6	61.8	74.0	52.7	82.4	62.7	91.7	68.3
Franklin, La	95	72	96	71	92	65	89	[1]64	.....	.....	.....	.....	.....	.....
Haslehurst, Miss	.....	.....	.....	.....	.....	.....	.....	.....	81.8	58.0	86.2	69.0	91.7	74.0
Lafayette, La	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	77.1	57.0	85.5	64.6	88.7	69.1
Minden, La	.....	.....	.....	.....	.....	.....	.....	.....	80.8	62.1	83.5	61.6	92.6	68.0
Morgan City, La	95	55	93.9	50.9	89.8	68.3	82.5	[1]69	.....	.....	.....	.....	.....	.....
Natchez, Miss	.....	.....	.....	.....	.....	.....	.....	.....	77.9	55.9	81.3	63.2	86.6	68.4
Natchitoches, La	86.1	73.2	93.1	62.5	84.7	60.6	83.8	50.3	71.0	54.8	76.7	63.1	88.0	69.7
New Iberia, La	97.8	86	98.4	86	92.7	78.2	(1)	(1)	.....	.....	.....	.....	.....	.....
Opelousas, La	.....	.....	.....	.....	.....	.....	.....	.....	72.2	(2)	78.5	(2)	88.7	68.6
Pass Christian, Miss	94	82	97	85.9	88.3	82.4	85.1	[1]76.9	.....	.....	.....	.....	.....	.....
Scranton, Miss	92.8	76.2	92	72.1	88	66	86	[1]65.2	.....	.....	.....	.....	.....	.....
Terre Bonne, La	92.5	74.6	92.3	72	88.3	66	80.3	[1]64.9	.....	.....	.....	.....	.....	.....
Whiteville, La	92	72	95	70	87	60	83	63	76.2	56.0	83.6	63.9	87.7	67.6
Galveston, Tex.:														
Austin, Tex	94	73.9	99.8	73.2	91	66	(2)	(2)	77.1	55.1	(2)	(2)	92.2	68.9
Beaumont, Tex	93	72	(2)	(2)	(2)	(2)	(2)	(2)	[6]78.1	[6]46.9	85.2	40.3	91.8	47.8
Belton, Tex	94.1	73.6	98.1	71.6	89.6	64.1	(3)	(3)	74.4	36.2	83.1	37.2	90.5	(2)
Columbia, Tex	.....	.....	.....	.....	.....	.....	.....	.....	(2)	(2)	(3)	(3)	87.7	71.2
Corsicana, Tex	98.3	73.4	96.6	69.7	92.3	62	85.8	61.7	75.2	52.1	83.9	61.0	92.2	68.6
Cuero, Tex	97	74	101	74	89.8	68.9	86	68	78.7	57.6	86.1	65.9	93.9	70.4
Dallas, Tex	97	73	97	73	83	62	81	60	75.5	49.3	85.4	60.8	92.8	68.3
Hearne, Tex	94	71.1	97.5	73	89.3	65.1	82.6	66.3	75.1	45.6	84.7	54.8	90.2	64.1
Hempstead, Tex	97.8	75.5	98	83.1	89.7	73.8	(2)	(2)	65.8	(2)	70.7	(2)	75.6	(2)
Houston, Tex	95.4	72.7	98	70.5	90.8	66.3	85.3	63.5	77.7	56.9	86.6	64.0	92.5	69.3
Huntsville, Tex	95	73.5	96.6	71.8	88.9	64.9	83.2	64.9	76.4	53.3	83.6	63.1	90.3	68.6
Longview, Tex	97.6	69.6	98.3	61.7	(2)	(2)	(2)	(2)	74.6	46.6	82.5	56.6	92.3	62.5
Luling, Tex	96.1	74.7	101.5	75.8	94.5	70.0	89.5	59.8	[4]79.7	[4]58.5	84.5	64.6	92.3	70.7
Orange, Tex	91	63.5	92.1	62.9	84.5	62.7	87	63.3	[4]71.4	[4]49.1	82.8	59.6	(2)	(2)
San Antonio, Tex	(2)	(2)	98.1	73.9	87.8	67.4	82.9	57.2	(3)	(3)	80.2	63.8	86.2	70.4
Sour Lake, Tex	94.6	71.5	94.1	69	89.5	63.1	85.5	62.8	[7]78.4	[7]54.8	85.4	64.0	91.2	67.2
Tyler, Tex	96	67	95	70	87	61	82.6	60.2	75.4	50.7	82.3	60.4	90.8	66.6
Waco, Tex	102.5	73	103	73	88	65	79	65	73.2	53.5	84.8	63.4	92.6	70.5

[1] Station closed.
[2] No record.
[3] Record incomplete.
[4] 20 days only.
[5] 19 days only.
[6] 16 days only.
[7] 18 days only.

Table showing the mean of the maximum and minimum temperatures, &c.—Continued.

Stations.	1883.								1884.					
	July.		August.		September.		October.		April.		May.		June.	
	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.	Max.	Min.
Galveston, Tex.—Cont'd.	°	°	°	°	°	°	°	°	°	°	°	°	°	°
Weatherford, Tex	(1)	(1)	(1)	(1)	(1)	(1)	77.4	57.1	74.3	46.1	79.2	56.9	87.4	63.5
Weimar, Tex	96	75.5	98.7	73	89.6	65.8	84.5	62.6	76.1	58.4	85.9	65.1	92.7	72.5
Little Rock, Ark.:														
Arkansas City, Ark	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	[2]69.8	[2]50.9	(3)	(3)	88.8	68.3
Brinkley, Ark	94.5	58.6	90.6	52.3	76.6	41.7	74.6	44	67.5	55.2	78.7	63.1	88.9	45.1
Devall's Bluffs, Ark	90.6	70.9	87	59.9	80.5	52.3	74	57	69.4	46.8	76.7	56.7	84.6	64.0
Helena, Ark	.....	.....	.....	.....	.....	.....	.....	.....	(1)	(1)	(3)	(3)	84.2	65.9
Kensett, Ark	90.7	67.2	90.5	62.8	83.9	52.8	75.5	53.1	67.7	45.0	79.2	56.9	85.8	64.5
Madison, Ark	82.1	59.7	95	57.1	90	45.4	(1)	(1)	(1)	(1)	(3)	(3)	90.4	64.7
Magnolia, Ark	.....	.....	.....	.....	.....	.....	.....	.....	(1)	(1)	(3)	(3)	89.4	69.8
Malvern, Ark	96.8	69.5	90.7	62.3	88.2	51.8	77	57	73.9	46.4	81.5	57.7	89.4	64.5
Monticello, Ark	92.7	68.7	89.8	(3)	86.4	54.7	72.3	51.8	72.0	45.8	80.4	56.8	87.1	62.5
Newport, Ark	.....	.....	.....	.....	.....	.....	.....	.....	77.5	48.0	80.1	57.5	86.9	57.0
Paris, Tex	96.6	64.9	92.8	66.2	88.8	65.5	(1)	(1)	71.5	47.3	80.4	58.2	89.0	66.0
Pine Bluff, Ark	.....	.....	.....	.....	.....	.....	.....	.....	(1)	(1)	[2]79.3	[2]63.6	86.3	76.4
Prescott, Ark	[4]96.1	[4]67.8	(3)	(3)	(1)	(1)	(1)	(1)	78.4	50.4	77.5	60.1	(3)	(3)
Russellville, Ark	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(3)	(3)	80.5	55.3	89.1	63.4
Texarkana, Ark	93.2	69.2	(3)	(1)	(1)	(1)	(1)	(1)	74.5	39.4	80.3	48.2	88.5	51.5
Walnut Ridge, Ark	95.8	68.8	87.3	63.7	88.5	51	(5)	(5)	.....	.....	.....	.....	.....	.....
Memphis, Tenn.:														
Batesville, Miss	95.8	70	92.5	66.5	(1)	(1)	(1)	(1)	73.4	50.1	83.2	59.5	87.9	67.0
Bolivar, Tenn	.....	.....	.....	.....	.....	.....	.....	.....	(1)	(1)	[2]78.3	[2]57.4	83.4	65.2
Brownsville, Tenn	90.8	69	87.6	64.9	84.8	56.3	74.2	57	69.6	49.1	79.9	58.1	86.5	64.2
Clarksville, Tenn	89.8	68.9	86.4	64.9	83.4	57.6	[5]73.4	[5]55.4	.....	.....	.....	.....	.....	.....
Corinth, Miss	91	71	88	68	84	59	76	61	69.7	51.0	81.5	59.5	83.7	65.8
Covington, Tenn	.....	.....	.....	.....	.....	.....	.....	.....	70.0	48.3	80.7	56.7	85.5	64.9
Decatur, Ala	97.1	67.7	89.4	65.6	86.2	58.5	75.9	57.4	71.6	47.6	84.2	58.0	86.8	64.7
Dyersburg, Tenn	.....	.....	.....	.....	.....	.....	.....	.....	69.2	47.1	80.8	56.3	86.3	64.8
Erin, Tenn	92.1	63.9	89.7	59.6	95.4	47	[5]82.3	[5]49.5	.....	.....	.....	.....	.....	.....
Grand Junction, Tenn	92	69	87	64.0	83.4	56	72	55	69.4	48.5	79.7	57.1	84.0	64.5
Grenada, Miss	94	69.3	(1)	(1)	(1)	(1)	(1)	(1)	71.6	48.6	81.8	58.4	(1)	(1)
Hernando, Miss	97.1	58.5	92	56.8	88	54.3	80	51.4	71.2	50.2	83.0	57.8	88.4	66.0
Holly Springs, Miss	.....	.....	.....	.....	.....	.....	.....	.....	(1)	(1)	78.2	63.3	82.6	66.1
Milan, Tenn	91.4	67.5	86.7	63.0	83.9	55.1	78.8	55.9	69.7	46.7	81.1	56.6	85.8	64.4
Oxford, Miss	.....	.....	.....	.....	.....	.....	.....	.....	(1)	(1)	78.8	57.2	83.8	64.8
Paris, Tenn	90.1	66	95.6	63.5	83.2	54.8	72	54.1	68.1	53.6	78.1	55.3	83.7	64.0
Scottsborough, Ala	92	65	88	62	77.4	57	75	54	69.7	46.1	81.7	56.5	82.2	62.6
Tuscumbia, Ala	90.8	65.4	87.5	64.6	89.1	55.1	81.5	57.6	71.4	49.5	80.6	57.1	83.8	63.1
Withe, Tenn	92	71	91	65	85.7	54.6	74	58	65.7	59.6	76.8	66.5	80.6	70.0

[1] No record.
[2] 18 days only.
[3] Record incomplete.
[4] 17 days only.
[5] Station closed.

APPENDIX 48.

Monthly and annual amount of precipitation, at stations of the Signal Service, United States Army, for the year ending June 30, 1884.

Stations.	1883.						1884.						Annual amount.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Albany, N. Y	5.96	3.69	3.19	3.49	1.14	2.55	2.98	3.85	4.00	2.09	2.79	1.80	37.53
Alexander, Fort, Alaska	....	....	....	....	....	....	....	....	....	....	....	....	....
Alpena, Mich	5.85	1.36	2.45	3.38	3.46	2.20	3.07	2.78	1.61	0.75	3.27	2.67	32.85
Apache, Fort, Ariz	5.46	4.26	0.60	1.39	0.02	3.48	0.68	3.43	4.44	1.67	1.31	2.35	29.09
Apache Pass, Ariz	....	....	....	(1) 0.20	0.39	1.12	3.14	4.96	2.63	0.00	0.23	0.12	....
Ashland, Oreg	....	....	....	....	....	....	....	[2]0.95	3.14	1.33	0.76	0.24	....
Assinaboine, Fort, Mont	0.24	2.59	0.65	0.98	3.76	0.23	0.16	0.44	0.53	0.25	3.05	4.72	17.60
Astoria, Oreg	....	....	....	....	....	[2]5.78	6.75	7.13	2.56	4.59	1.36	2.04	....
Atka, Alaska	3.88	4.83	9.71	10.05	14.72	8.85	8.03	10.31	7.14	5.97	....	....	....
Atlanta, Ga	1.06	2.73	1.38	1.52	4.72	4.84	5.20	5.84	9.70	5.86	1.33	10.73	54.91
Atlantic City, N. J	2.83	3.21	5.31	6.18	1.25	2.54	7.17	7.44	5.79	4.29	1.62	3.60	51.23
Augusta, Ga	2.21	2.16	1.25	1.69	3.73	2.59	4.34	3.98	6.97	3.68	3.21	4.34	40.15
Baltimore, Md	3.10	2.72	3.49	2.83	1.37	2.98	4.81	6.69	6.37	2.65	3.17	2.51	42.69
Barnegat City, N. J	2.43	2.13	4.84	6.51	1.06	2.83	5.25	1.11	2.38	0.97	0.79	2.24	32.54
Behring's Island, Behring Sea	2.09	3.43	3.07	2.52	2 16	1.72	0.94	1.49	1.44	1.38	1.31	0.26	22.41
Bennett, Fort, Dak	1.79	1.88	0.30	1.19	(3)	1.18	0.31	0.57	1.08	2.35	2.69	3.10	16.44
Benton, Fort, Mont	0.16	1.01	0.93	1.64	0.36	0.11	0.56	(4)	(5)	(5)	1.09	2.18	....
Bidwell, Fort, Cal	....	....	....	....	....	....	[2]6.08	2.70	6.57	2.83	1.40	4.20	....
Bismarck, Dak	1.32	0.98	0.04	3.88	0.26	1.33	0.38	0.87	0.60	2.20	2.56	3.63	18.05
Block Island, R. I	3.53	1.74	2.60	7.38	3.16	2.85	6.43	7.31	6 40	4.10	6.39	2.59	54.48
Boise City, Idaho	(5)	(3)	0.20	4.06	0.46	2.27	1.75	1.32	2.78	0.78	0.92	3.41	....
Boston, Mass	2.73	0.39	1.50	6.40	2.08	3.71	6 27	5.74	4.86	4.76	3.31	4.01	45.76
Brownsville, Tex	4.02	1.97	7.74	1.65	3.32	2.59	1.10	(3)	0.07	0.57	5 86	2.74	31.63
Buffalo, N. Y	3.35	2.30	2.11	3.58	2.93	2.74	3.36	4.03	2.84	1.56	3.92	2.80	35.52
Buford, Fort, Dak	1.69	1.96	0.22	1.41	0.14	0.11	0.11	0.12	0.10	1.30	0.14	0.99	8.29
Cairo, Ill	7.95	1.73	0.34	6.97	4.36	2.18	2.32	5.58	4.20	3.65	4.57	2.95	46.80
Canby, Fort, Wash T	....	....	(6) 3.15	5.65	8.34	5.87	6.45	5.20	2.18	2.98	1.30	2.16	....
Cantonment, Ind. T	....	....	....	....	....	(2)	(5)	0.72	0.96	2.56	6.95	2.96	....
Cape Henry, Va	5.24	3.48	5.39	7.86	0.74	2.02	8.43	3.31	7.05	2.89	0.78	2.52	50.31
Cape May, N. J	2.39	3.03	4.59	8.63	3.39	3.81	5.56	6.22	5.61	2.34	1.19	1.03	47.79
Cape Mendocino, Cal	0.00	0.00	1.40	2.12	1.36	2.25	1.27	1.95	3.52	3.36	0.33	0.92	18.48

[1] Observations began October 1, 1883.
[2] Station opened.
[3] Precipitation inappreciable.
[4] Record incomplete.
[5] No record.
[c] Observations began September 1, 1883.

Monthly and annual amount of precipitation, at stations of the Signal Service, United States Army, &c.—Continued.

Stations.	1883.						1884.						Annual amount.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Cedar Keys, Fla	5.09	3.37	2.77	0.23	0.93	0.32	5.08	1.56	2.21	3.58	1.96	6.68	33.78
Charleston, S. C	8.93	10.05	2.36	1.33	1.08	2.81	5.89	4.29	4.39	3.45	2.18	8.25	55.01
Charlotte, N. C	5.23	2.00	4.00	4.81	4.65	3.18	7.60	6.43	9.19	5.40	4.34	9.47	66.25
Chattanooga, Tenn	2.06	5.31	3.40	3.93	6.79	3.82	5.88	8.81	10.19	5.95	2.22	9.20	67.56
Cheyenne, Wyo	1.45	2.18	0.90	1.66	0.16	0.80	0.76	0.26	1.59	1.83	4.33	1.50	17.42
Chicago, Ill	5.53	1.21	1.36	7.36	5.26	1.59	1.39	3.27	5.16	3.05	1.53	2.11	38.82
Chimo, Fort (Ungava Bay), **Labrador**	4.10	4.04	4.82	3.87	0.44	0.31	0.78	0.20	1.17	0.84	2.02	5.46	28.05
Chincoteague, Va	5.82	7.48	4.05	6.65	1.21	1.92	4.89	5.84	7.81	1.51	1.12	3.60	51.85
Cincinnati, Ohio	2.21	2.10	1.83	8.39	4.87	5.61	2.21	8.87	2.63	3.02	5.56	2.77	50.07
Cleveland, Ohio	3.75	2.72	4.08	3.56	2.36	2.68	1.55	5.27	1.87	1.75	3.60	3.29	36.48
Cœur d'Alene, Fort, Idaho	0.00	0.03	0.16	2.55	5.26	2.32	3.02	1.34	0.85	1.36	0.66	1.68	19.23
Columbus, Ohio	3.75	2.54	2.43	6.11	3.87	4.12	2.25	4.95	3.59	2.11	3.79	2.59	42.10
Concho, Fort, Tex	3.74	3.05	3.96	8.02	0.29	1.20	1.26	0.48	0.76	5.64	13.50	2.09	44.01
Craig, Fort, N. Mex	....	....	....	....	....	....	(¹)1.10	0.04	0.09	0.03	0.19	0.87	....
Custer, Fort, Mont	0.77	1.01	0.46	0.97	1.10	1.87	2.85	1.29	1.02	0.77	1.19	3.87	17.17
Davenport, Iowa	3.66	1.02	0.73	5.18	3.58	0.99	0.75	0.93	3.27	0.77	3.79	3.07	27.74
Davis, Fort, Tex	3.62	3.07	1.49	0.42	0.64	0.81	0.48	0.00	0.28	1.63	1.08	2.78	16.30
Dayton, Wash T	0.00	0.30	0.09	1.44	3.11	2.79	3.14	5.66	1.79	2.40	0.81	2.02	23.55
Deadwood, Dak	1.32	1.82	0.11	0.80	0.45	1.01	0.85	1.01	2.61	2.29	1.72	2.51	16.50
Delaware Breakwater, Del	1.98	1.89	2.62	5.12	1.58	2.26	4.19	6.14	6.71	1.82	0.88	1.37	36.56
Denver, Colo	2.27	0.75	1.08	1.49	0.32	2.32	0.22	0.86	0.93	3.33	4.61	1.47	19.65
Des Moines, Iowa	2.37	2.83	1.88	4.42	1.32	1.08	0.85	1.92	2.24	2.97	4.34	3.84	30.06
Detroit, Mich	5.29	0.90	1.50	2.55	2.24	2.67	2.08	3.39	2.10	1.54	2.38	1.92	28.56
Dodge City, Kans	2.61	5.66	1.32	3.32	0.12	1.07	0.08	0.28	1.91	1.07	4.47	7.67	29.58
Dubuque, Iowa	7.90	2.70	2.09	4.44	1.65	1.88	0.99	2.19	3.85	2.77	4.88	4.89	40.23
Duluth, Minn	2.48	0.98	2.21	3.19	1.63	3.02	0.67	2.71	1.32	3.64	5.17	1.13	28.15
Eastport, Me	9.07	0.49	2.49	8.41	3.76	4.43	4.37	9.38	3.74	6.83	6.79	2.18	61.94
Elliott, Fort, Tex	2.87	6.56	4.97	5.32	0.04	0.84	0.61	0.27	0.34	1.08	6.29	6.86	36.05
El Paso, Tex	2.84	1.34	2.51	2.03	0.61	0.84	0.55	0.84	0.33	0.91	(²)	0.11	12.91
Erie, Pa	3.94	2.44	4.41	4.00	3.47	3.74	4.59	5.88	3.84	1.99	3.42	2.40	44.12
Escanaba, Mich	4.74	1.17	2.92	3.93	3.62	1.67	0.55	2.75	1.10	2.60	2.69	2.52	30.26
Fort Smith, Ark	4.24	1.32	2.34	7.29	4.74	3.09	1.35	10.72	2.28	2.62	3.70	2.41	46.10
Galveston, Tex	1.38	1.09	3.22	6.78	4.88	2.91	5.11	0.89	4.84	5.55	8.42	6.84	51.91
Grand Haven, Mich	7.96	0.46	2.29	3.67	4.86	1.54	2.83	2.72	3.86	3.83	3.59	3.82	41.43
Grant, Fort, Ariz	2.90	3.07	0.42	1.21	0.11	1.44	1.12	4.62	3.87	0.47	0.81	1.20	21.24
Hatteras, N. C	6.20	3.13	9.89	3.89	4.50	3.46	7.64	5.18	5.84	3.51	2.66	2.51	58.41
Helena, Mont	0.82	(²)	(²)	(²)	0.66	1.02	3.75	1.83	0.59	1.06	0.68	4.29	....

Huron, Dak	5.20	1.77	1.68	1.96	0.05	0.61	0.09	0.58	1.58	2.70	2.90	3.18	22.25
Indianapolis, Ind	6.12	2.48	2.73	3.56	6.80	4.34	1.05	4.73	3.01	2.89	4.80	4.11	51.61
Indianola, Tex	0.61	0.32	9.86	2.46	1.21	1.77	0.71	0.04	1.91	1.96	7.94	7.56	36.85
Jacksonville, Fla	6.88	7.63	7.28	7.20	0.09	0.42	4.78	2.45	2.63	2.32	5.45	6.89	54.08
Keokuk, Iowa	3.15	1.32	1.76	0.95	2.09	1.20	0.85	1.88	3.87	1.31	3.16	4.03	31.07
Key West, Fla	1.51	6.08	5.17	19.77	0.84	0.97	1.82	1.70	0.16	0.98	0.35	4.56	48.91
Kitty Hawk, N. C	3.98	12.89	7.73	3.80	1.65	2.89	6.50	4.82	9.17	4.83	1.75	4.57	63.58
Knoxville, Tenn	3.59	2.48	2.53	4.66	4.18	3.35	6.66	8.51	11.98	4.44	2.10	5.33	59.85
La Crosse, Wis	11.08	1.71	4.93	1.68	1.09	1.06	0.53	1.42	1.11	3.07	1.82	2.94	32.38
Lake View, Oreg	....	....	....	....	(¹)0.34	2.67	2.70	2.49	4.12	2.85	(¹)	6.53	....
Leavenworth, Kans	3.58	1.95	1.57	3.31	2.02	0.65	0.97	1.42	3.70	4.74	4.79	3.38	37.03
Lewiston, Idaho	(³)	(³)	0.04	1.84	1.86	1.86	2.15	3.10	1.25	1.45	0.50	5.66	19.21
Linkville, Oreg	....	....	....	....	....	....	(¹)	2.13	3.13	2.44	1.72	2.27	....
Little Egg Harbor, N. J	3.96	2.51	3.81	4.45	1.45	2.64	5.88	6.08	4.96	2.09	0.97	1.78	40.58
Little Rock, Ark	4.88	2.30	3.67	5.55	3.18	3.89	3.45	9.79	4.67	10.24	7.33	2.18	61.08
Los Angeles, Cal	(³)	0.00	0.00	1.42	0.00	2.56	3.15	18.87	12.36	3.58	0.39	1.39	38.22
Louisville, Ky	4.74	0.86	0.32	3.05	6.05	4.86	1.94	9.84	3.76	2.91	5.75	3.59	52.67
Lynchburg, Va	0.19	1.87	5.57	4.47	1.14	5.91	3.48	9.02	3.14	2.85	2.74	4.16	54.04
Mackinaw, City Mich	4.35	1.95	2.08	2.40	(⁴)	(⁴)	3.09	5.10	1.21	0.99	1.67	2.29	....
Macon, Fort, N. C	6.71	3.30	12.69	2.83	0.51	1.88	5.73	2.34	4.10	2.47	3.38	1.63	47.57
Maginnis, Fort, Mont	0.28	0.37	0.66	4.06	1.12	0.89	1.47	0.69	0.56	0.62	0.76	1.21	12.19
Maricopa, Ariz	....	....	....	....	(¹)0.00	1.96	0.38	0.74	2.83	0.51	0.01	0.82	....
Marquette, Mich	4.04	2.11	3.24	2.58	2.88	2.01	0.91	2.05	0.74	3.94	2.43	1.21	28.14
McDowell, Fort, Ariz	....	....	....	....	....	(¹)4.81	0.83	4.37	3.47	0.58	0.45	0.09	....
Memphis, Tenn	1.78	1.85	1.05	3.56	4.56	5.86	5.66	9.64	5.08	3.60	6.46	7.26	....
Milwaukee, Wis	7.18	0.88	2.82	1.92	1.81	1.96	1.69	2.61	2.77	3.15	1.67	4.22	31.63
Mobile, Ala	3.31	5.88	0.96	0.84	2.57	3.11	7.40	5.01	11.58	5.54	3.48	7.01	61.64
Montgomery, Ala	0.87	2.08	0.22	2.00	1.70	4.23	4.82	4.80	9.50	3.08	1.18	10.26	44.74
Moorhead, Minn	4.57	3.16	2.51	3.22	0.16	1.47	0.55	1.32	1.08	1.28	1.75	1.84	22.81
Mount Washington, N. H	11.14	6.06	6.90	5.55	3.72	2.66	2.45	7.55	4.16	3.29	9.54	3.08	71.10
Narragansett Pier, R. I	6.09	1.13	1.80	[illegible]	5.11	2.75	6.05	5.80	5.24	3.35	4.69	4.22	54.87
Nashville, Tenn	4.83	4.47	2.23	5.27	3.11	4.97	7.20	3.18	3.89	3.51	3.58	6.53	62.82
Neah Bay, Wash T	....	....	....	....	....	(¹)11.83	15.50	8.00	3.60	4.65	6.20	4.40	....
New Haven, Conn	5.67	1.26	2.43	5.87	1.56	3.85	4.63	5.57	4.15	2.36	3.32	5.26	45.93
New London, Conn	7.84	2.76	3.24	7.38	3.19	3.63	6.12	5.62	5.53	3.99	5.64	6.29	61.17
New Orleans, La	3.33	4.12	0.25	3.43	6.86	3.47	4.35	3.16	3.24	6.48	4.33	3.60	56.12
New River Inlet, N. C	5.94	(⁴)	7.41	3.29	0.56	2.21	6.91	4.91	3.63	2.69	3.66	3.43	....
New York City	3.37	2.29	3.57	4.27	1.65	3.40	6.07	5.09	4.43	2.66	4.35	4.16	45.81
Norfolk, Va	3.87	2.91	6.63	3.79	0.55	2.40	5.94	4.58	9.13	1.95	1.25	6.45	49.45
North Platte, Nebr	1.38	4.51	1.08	3.47	0.42	1.43	0.10	0.23	1.82	2.14	2.40	1.39	20.37
Ocean City, Md	2.81	3.24	4.81	(⁴)	0.35	1.93	5.46	6.46	2.98	1.44	1.08	2.70	....
Olympia, Wash T	(³)	0.01	2.24	3.73	5.10	5.14	5.47	4.17	1.57	3.60	1.46	3.20	35.69
Omaha, Nebr	4.79	3.39	4.58	5.03	0.64	0.73	0.78	1.42	4.91	3.88	1.45	6.11	37.61
Oswego, N. Y	3.21	2.16	2.32	1.94	3.02	4.08	6.49	2.98	3.81	0.88	2.39	1.48	34.76
Palestine, Tex	1.28	0.30	1.99	4.47	7.09	2.50	2.31	2.47	3.62	7.30	17.25	2.65	53.28
Pensacola, Fla	3.29	3.75	0.32	1.91	3.06	5.30	3.69	3.43	5.75	5.67	6.64	7.84	55.65
Philadelphia, Pa	1.78	3.40	4.24	4.20	1.34	2.76	5.46	5.70	4.70	1.63	3.39	3.00	41.60
Phœnix, Ariz	0.07	0.07	0.00	0.20	0.00	3.36	0.16	2.46	2.14	0.40	0.01	0.15	9.02
Pike's Peak, Colo	5.87	2.22	1.76	0.15	0.07	0.72	0.10	0.76	0.39	0.48	2.90	0.94	15.81
Pittsburg, Pa	5.52	3.40	2.47	2.43	1.50	3.40	4.82	4.57	3.71	1.11	3.48	1.71	38.12

[1] Station opened.
[2] Precipitation inappreciable.
[3] No record.
[4] Record incomplete.

Monthly and annual amount of precipitation, at stations of the Signal Service, U. S. A., &c.—Continued.

Stations.	1883.						1884.						Annual amount.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Point Judith, R. I.	5.00	1.61	1.71	6.95	4.01	3.01	5.02	4.99	4.17	3.04	4.34	5.82	49.67
Poplar River, Mont	0.16	1.44	(1)1.01	(2)	0.09	(3)0.13	(1)0.31	0.41	(4)0.34	0.91	0.78	1.67	....
Port Angeles, Wash. T	....	....	....	....	....	(5)4.36	4.01	4.62	0.42	1.68	0.65	1.75	....
Port Huron, Mich	5.63	0.59	2.24	3.47	2.58	1.30	1.63	3.16	1.84	2.58	1.71	2.87	29.60
Portland, Me	5.05	0.36	2.68	3.51	3.66	2.63	4.54	6.92	4.86	6.12	6.46	1.41	48.20
Portland, Oreg	0.00	0.19	0.67	3.91	8.26	6.34	3.70	4.88	2.25	3.57	1.34	1.42	36.53
Prescott, Ariz	3.20	3.26	0.33	0.43	(6)	4.54	0.25	6.55	5.51	1.62	1.45	0.32	27.46
Provincetown, Mass	4.33	0.71	1.87	7.45	3.58	2.60	6.58	7.84	6.77	(7)	....	....	....
Pyramid Harbor, Alaska	1.70	2.19	5.11	(3)	(3)	6.89	8.30	4.90	5.75	0.98	2.94	1.05	....
Pysht, Wash	....	....	....	....	....	(5)11.34	11.29	7.98	1.90	3.17	2.90	2.56	....
Red Bluff, Cal	0.00	(6)	1.04	2.68	0.74	0.52	3.55	2.21	7.81	4.31	0.18	0.97	24.01
Reno, Fort, Ind. T	3.74	3.54	1.70	3.11	0.12	1.16	0.20	0.39	2.18	4.03	6.85	4.95	31.97
Rio Grande City, Tex	1.40	0.10	4.88	0.22	1.70	1.07	0.47	0.00	0.16	0.93	5.15	0.02	16.10
Rochester, N. Y	....	....	....	(8)1.36	2.03	2.38	5.13	1.94	3.30	0.94	2.28	4.82	....
Roseburg, Oreg	0.01	0.03	0.62	2.84	2.20	5.73	3.66	3.71	3.37	3.48	0.85	1.90	28.40
Sacramento, Cal	0.00	0.00	0.90	0.97	0.61	0.44	3.43	4.46	8.14	4.32	0.06	1.45	24.78
Saint Louis, Mo	4.31	3.34	0.01	6.60	3.71	1.78	0.79	4.48	3.00	4.15	2.68	4.52	39.82
Saint Michael's, Fort, Alaska	3.13	3.80	4.48	1.66	1.06	0.70	0.57	0.17	0.78	0.26	0.25	0.77	17.63
Saint Paul, Minn	4.33	1.22	2.23	1.10	1.01	1.59	0.48	1.27	1.34	2.00	2.09	3.57	22.23
Saint Vincent, Minn	2.16	5.16	1.57	3.90	0.26	0.26	0.14	0.24	0.38	0.80	1.11	2.63	18.61
Salt Lake City, Utah	0.10	0.62	0.13	2.24	1.78	1.20	0.71	2.23	3.69	2.89	1.78	0.33	17.70
San Carlos Agency, Ariz	2.48	1.11	0.11	1.13	0.00	2.47	1.00	3.83	3.97	0.84	0.32	0.49	17.75
San Diego, Cal	0.00	0.00	0.00	2.01	0.20	1.82	1.34	9.05	6.23	2.84	2.17	0.31	25.97
Sandusky, Ohio	(9)	4.74	4.07	4.98	3.92	2.61	1.25	5.48	3.26	1.50	3.70	2.42	....
Sandy Hook, N. J	2.30	3.44	4.63	5.20	1.54	2.57	6.76	4.72	4.32	3.15	5.27	4.52	48.42
Sanford, Fla	3.14	6.74	3.43	8.38	0.35	0.15	0.91	4.40	0.94	1.90	1.62	9.57	41.53
San Francisco, Cal	0.00	0.00	0.42	1.48	1.60	0.92	3.94	6.65	8.24	6.33	0.23	2.57	32.38
Savannah, Ga	4.56	9.28	2.55	1.41	0.58	1.99	3.89	3.44	4.91	3.78	1.22	9.37	46.98
Scott's Hill, N. C	10.09	3.60	14.63	1.68	1.37	1.39	4.86	3.22	4.83	2.12	2.54	5.07	55.40
Shaw, Fort, Mont	0.15	0.97	0.79	2.22	0.83	0.54	0.86	0.82	0.42	0.59	0.74	0.97	9.90
Shreveport, La	0.22	0.72	1.29	0.97	8.66	3.07	4.55	5.49	4.78	6.60	14.47	4.22	55.04
Sitka, Alaska	6.38	9.16	8.13	13.31	10.63	14.54	14.01	6.15	11.05	2.76	10.35	3.77	110.24
Smithville, N. C	2.20	2.58	8.69	1.19	0.35	1.57	3.44	2.88	2.80	2.37	1.42	2.31	31.80
Spokane Falls, Wash	0.00	0.15	0.08	1.48	1.98	0.21	1.79	3.04	1.54	1.33	0.56	2.58	14.74
Spokane, Fort, Wash	....	....	....	[5]1.55	1.14	1.27	0.62	0.58	0.60	1.11	0.00	1.20	....
Springfield, Ill	3.77	0.95	1.06	6.08	3.48	3.17	1.51	4.24	3.70	2.49	3.79	6.20	40.44
Stanton, Fort, N. Mex	....	....	....	....	....	....	(5)1.20	0.40	0.70	0.30	1.73	2.11	....

Stockton, Fort, Tex	2.64	0.85	14.68	0.51	1.29	0.86	0.21	0.88	0.12	0.91	1.66	2.84	27.45
Sully, Fort, Dak	(10)	(10)	(10)	1.37	0.00	1.18	0.88	0.35	(10)	0.14	0.36	(7)	....
Tatoosh Island, Wash T	....	....	....	(11)4.30	15.83	10.45	13.82	6.04	2.41	3.31	4.45	3.98	....
Thatcher's Island, Mass	5.46	2.67	0.78	5.47	3.40	5.29	7.66	7.54	4.70	3.21	4.39	2.79	53.36
Thomas, Camp, Ariz	1.85	2.52	(6)	0.52	0.00	1.07	0.45	2.94	3.21	0.72	0.60	0.52	14.40
Toledo, Ohio	4.26	1.51	2.78	3.68	3.03	1.90	2.61	3.03	2.09	1.57	4.71	2.70	33.87
Totten, Fort, Dak	....	....	....	....	....	....	[5]0.28	0.58	0.68	2.38	1.20	2.50	....
Unalashka, Alaska	1.70	4.74	9.75	6.15	5.02	13.64	11.93	26.19	9.44	14.00	3.97	12.41	118.94
Verde, Fort, Ariz	3.35	1.14	0.00	0.45	0 00	4.30	0.39	3.59	3.60	1.43	0.72	0.23	19.20
Vicksburg, Miss	3.61	1.86	0.84	4.84	11.53	9.42	8.20	6.73	8.29	4.47	11.76	3.14	74.69
Washington City	4.73	3.30	4.33	2.63	1.19	2.89	5.59	6.84	7.24	1.86	3 09	6.95	50.64
Wash Woods, N. C	3.63	5.77	4.42	2.98	0.79	2.06	5.63	3.65	5 20	0.22	0.54	3.44	38.33
West Las Animas, Colo	0.67	0.65	1.35	0.69	0.21	1.68	0 26	0.50	1.19	1.05	4.46	2.79	15.50
Wickenburg, Ariz	....	....	....	(5)0.22	0.00	4.06	0.19	4.21	3.67	1.24	0.64	0.06	....
Willcox, Ariz	....	....	....	....	(8)0.00	0.86	0.80	1.61	1.75	0.00	0.00	0.04	....
Wilmington, N. C	4.71	5.19	16.53	1.09	0.42	1.22	5.22	3.80	6.07	2.45	3.70	7.94	58.34
Yankton, Dak	3.33	2.85	8.98	1.98	0.08	0.91	0.25	1.80	0.92	5.73	1.43	1.72	24.98
Yates, Fort, Dak	2.25	0.67	0.04	1.08	0.15	1.98	0.58	1.24	0.23	0.72	0.62	2.75	12.31
Yuma, Ariz	0.81	0.22	0.13	0.05	0.00	(10)	(6)	1.58	1.48	0.07	0.41	(6)	....

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[1] 23 days only.
[2] Record incomplete.
[3] 20 days only.
[4] 19 days only.
[5] Station opened.
[6] Precipitation inappreciable.
[7] Observations discontinued April 1, 1884.
[8] Observations re-commenced October 10, 1883.
[9] Observations re-commenced July 20, 1883.
[10] No record.
[11] Observations began October 1, 1883.

APPENDIX 49.

Annual and mean annual precipitation at stations of the Signal Service, United States Army.

Stations.	Established.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	Mean annual.	
														Year.	Inches.
		Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*		
Albany, N. Y	Dec. 22, 1873			37.93	38.25	38.19	30.09	49.37	38.60	32.54	36.34	33.76	39.37	10	38.05
Alexander, Fort, Alaska	Aug. 1, 1881										(1)	36.65	(2)	1	36.65
Alpena, Mich	Sept. 10, 1872		31.10	25.18	37.27	37.62	41.00	38.48	39.97	43.68	45.61	45.10	35.32	11	38.21
Apache, Fort, Ariz	Oct. 9, 1877								18.58	14.77	31.12	27.62	21.65	5	22.75
Assinaboine, Fort, Mont	Oct. 6, 1879											12.76	15.10	2	13.93
Atlanta, Ga	Sept. 25, 1878								50.31	62.70	61.74	58.26	51.53	5	56.91
Atlantic City, N. J	Dec. 10, 1873			33.98	30.85	35.95	30.38	42.00	47.43	46.25	40.08	55.29	44.64	10	42.18
Augusta, Ga	Nov. 2, 1870	55.17	48.50	57.19	54.68	46.10	53.97	40.31	40.99	47.91	54.77	49.62	39.90	12	49.60
Atka, Alaska	May 4, 1879									(2)	(1)	35.11	33.97	2	34.54
Baltimore, Md	Jan. 1, 1871	35.14	49.37	33.63	45.26	46.70	43.14	50.69	36.01	41.90	49.12	42.11	40.52	12	42.75
Barnegat City, N. J	Dec. 10, 1873			55.93	46.73	47.17	48.24	52.06	49.35	48.81	53.28	72.90	42.96	10	51.74
Bennett, Fort, Dak	Dec. 22, 1879										19.80	17.80	16.91	3	18.17
Benton, Fort, Mont	Oct. 11, 1879	12.32	11.95	10.45	12.75	(1)	(1)	(1)	(1)	(1)	16.81	10.18	13.01	7	12.50
Bismarck, Dak	Sept. 15, 1874				27.52	30.92	17.68	20.23	22.61	19.75	15.76	21.33	15.66	9	21.27
Block Island, R. I	Sept. 1, 1880										59.44	57.65	39.69	3	52.26
Boisé City, Idaho	July 1, 1877							10.21	17.63	10.66	13.56	14.43	(1)	5	13.30
Boston, Mass	Nov. 1, 1870	50.02	54.53	43.52	50.15	48.96	51.49	65.53	45.67	37.80	52.63	43.82	35.48	12	48.31
Brownsville, Tex	Aug. 25, 1875					25.81	25.86	36.35	34.73	38.07	31.74	32.56	31.02	8	32.02
Buffalo, N. Y	Nov. 1, 1870	31.25	44.63	30.44	31.44	39.26	34.48	60.24	30.47	39.26	35.95	33.82	38.07	12	37.44
Buford, Fort, Dak	Oct. 23, 1878								19.71	23.25	13.90	12.73	10.82	5	16.08
Cairo, Ill	June 1, 1871	26.52	50.66	47.58	52.93	55.60	39.47	41.76	45.41	49.56	32.18	61.58	52.54	12	46.33
Cape Henry, Va	Dec. 15, 1873			51.00	59.60	64.17	64.67	60.85	49.88	63.06	50.18	57.51	57.26	10	57.82
Cape May, N. J	May 24, 1871	36.67	49.76	44.26	50.89	45.68	47.68	45.22	50.38	53.30	42.99	51.96	52.62	12	47.63
Cape Mendocino, Cal	July 27, 1882												19.17	1	19.17
Cedar Keys, Fla	Nov. 7, 1879									52.80	58.08	66.90	58.58	4	58.95
Charleston, S. C	Jan. 5, 1871	57.06	62.15	62.51	50.97	78.42	78.11	77.44	50.29	46.69	48.20	57.01	51.35	12	59.60
Charlotte, N. C	Oct. 6, 1878								44.34	59.60	41.62	53.53	57.09	5	51.24
Chattanooga, Tenn	Jan. 8, 1879								52.08	67.97	60.97	61.96	54.16	5	59.42
Cheyenne, Wyo	Nov. 1, 1870	13.48	10.01	9.71	12.10	5.03	11.71	12.64	7.34	8.38	11.88	8.64	19.24	12	10.85
Chicago, Ill	Nov. 1, 1870	29.07	36.41	28.63	38.08	36.48	41.01	41.95	30.71	37.10	44.18	41.34	45.86	12	37.57
Chincoteague, Va	Mar. 16, 1880										35.34	35.10	42.35	3	37.60
Cincinnati, Ohio	Nov. 1, 1870	34.68	41.38	37.55	42.58	52.62	34.65	41.62	51.60	54.67	47.24	52.12	52.35	12	45.26
Cleveland, Ohio	Nov. 1, 1870	34.38	41.33	33.33	36.91	41.20	33.49	53.51	41.51	37.38	34.96	39.98	41.13	12	39.09
Cœur d'Alene, Fort, Idaho	Sept. 1, 1881											13.99	19.54	2	16.76
Columbus, Ohio	July 1, 1878								31.26	44.68	46.99	51.30	48.88	5	44.62
Concho, Fort, Tex	Oct. 10, 1875							24.84	18.54	37.95	18.96	42.12	32.64	6	29.18
Custer, Fort, Mont	Dec. 5, 1878									19.65	11.88	12.05	13.84	4	14.36
Davenport, Iowa	May 24, 1871	36.44	28.08	36.79	31.90	46.82	35.10	31.21	33.89	42.78	37.28	36.60	34.59	12	35.96

Davis, Fort, Tex	Dec. 24, 1877	....	....	....	....	....	....	....	21.41	23.48	(1)	20.22	14.22	4	19.83
Dayton, Wash	July 1, 1879	....	....	....	....	....	....	....	....	29.78	27.70	33.52	21.44	4	28.11
Deadwood, Dak	Dec. 25, 1877	....	....	....	....	....	....	....	28.50	19.20	21.13	33.83	29.69	5	26.47
Delaware Breakwater, Del	Jan. 28, 1880	....	....	....	....	....	....	....	....	....	25.50	35.95	33.84	3	31.76
Denver, Colo	Nov. 19, 1871	18.05	11.81	13.46	17.25	20.12	16.38	15.51	10.86	9.58	12.78	14.49	19.49	12	14.98
Des Moines, Iowa	Aug. 1, 1878	....	....	....	....	....	....	....	32.82	36.66	56.81	47.60	39.69	5	42.72
Detroit, Mich	Nov. 1, 1870	25.63	34.32	26.43	35.71	40.40	35.23	43.39	37.17	47.68	45.44	30.32	32.57	12	36.19
Dodge City, Kans	Sept. 15, 1874	....	....	....	10.78	15.40	27.89	17.96	15.43	18.12	33.55	13.14	28.50	9	20.09
Dubuque, Iowa	July 10, 1873	....	....	30.80	35.47	50.28	38.97	38.30	32.40	40.32	55.15	32.84	30.57	10	39.41
Duluth, Minn	Nov. 1, 1870	30.12	38.73	36.43	26.93	32.27	34.31	28.09	45.28	38.11	37.56	38.02	23.20	12	34.09
Eastport, Me	Apr. 1, 1873	....	....	42.56	45.42	57.99	50.63	51.37	43.48	42.44	55.98	47.18	53.17	10	49.02
Elliott, Fort, Tex	Nov. 29, 1879	....	....	....	....	....	....	....	....	16.79	16.16	24.76	28.21	4	21.48
El Paso, Tex	Nov. 5, 1877	....	....	....	....	....	....	....	6.81	14.37	18.17	8.27	12.92	5	12.11
Erie, Pa	May 25, 1873	....	....	37.83	41.20	44.65	38.96	55.23	36.25	40.94	37.62	46.37	44.81	10	42.39
Escanaba, Mich	May 24, 1871	32.60	27.06	31.12	43.54	42.44	34.61	32.78	30.76	30.17	48.49	40.07	30.02	12	35.30
Fort Smith, Ark	June 1, 1882	....	....	....	....	....	....	....	....	....	....	(1)	46.65	1	46.65
Galveston, Tex	Apr. 19, 1871	41.72	58.91	49.39	58.48	50.92	66.87	60.90	26.93	50.97	53.28	57.68	41.11	12	51.43
Grand Haven, Mich	May 24, 1871	32.50	28.14	(1)	(1)	46.29	36.03	33.75	35.48	44.65	47.89	42.16	44.84	10	39.17
Grant, Fort, Ariz	Nov. 1, 1875	....	....	....	....	....	....	16.46	12.82	15.74	18.96	14.82	15.48	6	15.71
Hatteras, N. C	Dec. 1, 1880	....	....	....	68.26	65.73	102.04	77.18	70.72	92.64	58.81	66.60	76.96	9	75.44
Helena, Mont	Oct. 15, 1879	....	....	....	....	....	....	....	....	(1)	19.94	10.32	(1)	2	15.13
Huron, Dak	July 1, 1881	....	....	....	....	....	....	....	....	....	....	28.12	23.25	2	25.68
Indianapolis, Ind	Feb. 10, 1871	34.12	52.83	43.90	54.58	57.56	39.08	38.62	42.88	50.99	48.74	53.68	54.12	12	47.59
Indianola, Tex	May 1, 1874	....	43.30	44.51	35.39	32.57	42.67	39.74	26.78	43.17	37.70	41.90	30.69	11	38.22
Jacksonville, Fla	Sept. 11, 1871	57.17	60.65	42.31	57.60	55.28	50.58	60.42	47.18	65.51	54.69	53.26	53.34	12	55.33
Keokuk, Iowa	July 16, 1871	29.37	41.04	35.77	48.42	51.65	48.59	31.80	22.51	34.54	39.01	41.54	38.63	12	38.57
Key West, Fla	Nov. 1, 1870	31.77	32.75	32.75	36.35	37.95	38.15	49.03	58.54	33.41	53.10	41.86	48.24	12	41.16
Kitty Hawk, N. C	Jan. 15, 1875	....	....	....	....	57.11	80.70	63.10	51.25	68.72	51.71	73.79	72.86	8	64.90
Knoxville, Tenn	Jan. 1, 1871	44.22	59.38	58.38	73.87	41.21	54.36	47.76	48.95	52.54	45.67	66.36	50.67	12	53.61
La Crosse, Wis	Oct. 15, 1872	....	23.27	31.88	38.72	39.41	36.58	31.40	34.94	34.34	44.74	27.93	33.69	11	34.26
Leavenworth, Kans	May 21, 1871	43.50	35.27	33.81	31.26	44.48	52.06	35.15	41.55	36.89	39.93	25.97	41.94	12	38.49
Lewiston, Idaho	July 1, 1879	....	....	....	....	....	....	....	....	17.41	20.56	14.74	15.83	4	17.14
Little Rock, Ark	July 1, 1879	....	....	....	....	....	....	....	....	56.35	43.03	75.54	55.62	4	57.64
Los Angeles, Cal	July 1, 1877	....	....	....	....	....	....	20.86	17.41	18.65	5.53	10.74	14.14	6	14.56
Louisville, Ky	Sept 11, 1871	....	45.77	43.69	53.21	53.62	44.58	47.06	50.69	53.85	36.59	56.50	51.54	11	48.83
Lynchburg, Va	May 24, 1871	30.55	52.61	44.35	41.89	40.04	43.75	45.04	36.81	38.78	35.57	46.90	39.85	12	41.84
Macon, Fort, N. C	May 23, 1878	....	....	....	....	....	....	....	....	....	62.36	61.63	67.45	3	63.81
Maginnis, Fort, Mont	July 14, 1882	....	....	....	....	....	....	....	....	....	....	(1)	13.29	1	13.29
Marquette, Mich	May 1, 1871	30.25	26.44	25.35	30.22	31.44	27.54	36.19	40.75	33.44	42.91	37.08	30.50	12	32.68
Memphis, Tenn	Feb. 28, 1871	43.95	56.20	44.07	57.02	55.49	73.50	49.33	52.29	61.67	42.84	71.05	57.14	12	55.38
Milwaukee, Wis	Nov. 1, 1870	26.26	30.57	30.83	35.56	50.34	46.15	38.29	24.92	29.96	39.07	28.43	29.47	12	34.15
Mobile, Ala	Nov. 7, 1870	68.20	68.61	56.36	62.73	58.60	68.74	63.47	57.83	(1)	90.97	74.67	58.50	11	65.84
Montgomery, Ala	Nov. 9, 1870	....	64.00	51.93	58.16	59.74	50.26	55.40	48.46	54.22	53.81	54.75	39.71	11	53.68
Moorhead, Minn	Jan. 1, 1881	....	....	....	....	....	....	....	....	....	29.48	34.01	24.96	3	29.48
Mount Washington, N. H	Dec. 1, 1870	56.51	78.56	70.72	55.78	77.56	86.41	114.49	91.11	79.93	121.13	97.41	76.71	12	83.86
Nashville, Tenn	Nov. 1, 1870	40.20	51.69	58.24	53.48	46.91	49.64	48.56	57.69	67.24	48.08	63.45	58.33	12	53.63
New Haven, Conn	Dec. 10, 1872	....	57.32	55.82	43.52	53.98	51.36	58.12	55.50	46.52	51.32	47.92	39.46	11	50.99
New London, Conn	Jan. 10, 1871	47.01	42.26	59.59	44.79	43.20	51.31	39.85	51.05	43.23	51.64	50.46	54.37	12	48.19
New Orleans, La	Nov. 1, 1870	60.68	65.55	62.74	85.73	67.25	63.09	66.16	51.27	69.83	64.01	50.18	69.85	12	64.70

[1] Record incomplete.

[2] No record.

Annual and mean annual precipitation at stations of the Signal Service, United States Army—Continued.

Stations.	Established.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	Mean annual.	
														Years.	Mean.
		Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*		*Inches.*
New York City	Nov. 1, 1870	45.79	39.98	40.84	45.09	47.40	40.94	46.67	36.13	37.34	40.40	46.61	38.83	12	42.17
Norfolk, Va	Jan. 1, 1871	56.95	55.43	50.41	50.97	46.54	69.13	51.87	35.88	51.84	40.06	57.67	54.80	12	51.75
North Platte, Nebr	Sept. 18, 1874	......	......	......	15.35	11.84	25.47	18.62	20.06	17.48	22.93	17.95	30.01	9	19.97
Olympia, Wash	July 1, 1877	......	......	......	......	......	......	63.34	73.44	62.77	65.56	51.59	41.61	6	59.72
Omaha, Nebr	Nov. 1, 1870	32.48	27.04	25.75	42.89	32.51	40.95	37.05	30.81	28.52	45.74	37.68	48.92	12	35.83
Oswego, N. Y	Nov. 1, 1870	27.61	33.29	34.93	31.41	34.20	32.20	55.83	36.60	43.19	39.25	36.13	34.49	12	36.59
Palestine, Tex	Dec. 3, 1881	......	......	......	......	......	......	......	......	......	......	(1)	43.49	1	43.49
Pensacola, Fla	Oct. 27, 1879	......	......	......	......	......	......	......	......	61.30	86.02	72.01	61.55	4	70.22
Philadelphia, Pa	Jan. 1, 1871	48.36	55.28	46.25	40.22	47.39	37.26	34.53	36.75	33.58	30.21	45.58	39.17	12	41.22
Phoenix, Ariz	Aug. 18, 1876	......	......	......	......	......	......	8.52	6.40	6.82	8.91	6.94	7.40	6	7.50
Pike's Peak, Colo	Nov. 1, 1873	......	......	26.86	24.74	23.87	25.58	42.87	39.82	40.65	44.57	28.82	18.17	10	31.60
Pittsburg, Pa	Nov. 1, 1870	31.05	41.42	39.42	34.05	37.01	34.72	38.76	37.02	31.97	37.30	38.63	43.17	12	37.04
Poplar River, Mont	May 1, 1882	......	......	......	......	......	......	......	......	......	......	(1)	6.22	1	6.22
Port Huron, Mich	July 25, 1874	......	......	......	29.14	37.16	31.61	39.91	27.54	38.68	35.27	41.04	36.98	9	35.26
Portland, Me	Jan. 15, 1871	37.02	36.90	36.24	36.14	39.04	43.51	38.60	41.61	37.59	46.68	38.74	31.99	12	38.67
Portland, Oreg	Nov. 1, 1871	46.90	50.52	46.17	60.08	55.04	58.30	47.70	62.22	51.87	58.05	67.24	51.45	12	54.64
Prescott, Ariz	Nov. 19, 1873	......	......	......	......	16.16	(1)	15.63	12.89	10.02	15.45	15.26	16.13	7	14.51
Provincetown, Mass	Feb. 15, 1882	......	......	......	......	......	......	......	......	......	......	(1)	40.39	1	40.39
Red Bluff, Cal	July 1, 1877	......	......	......	......	......	......	48.96	33.64	26.53	24.93	21.82	13.76	6	28.27
Rio Grande City, Tex	May 28, 1875	......	......	......	......	......	......	24.43	25.61	22.31	28.13	(1)	(1)	4	25.12
Rochester, N. Y	Nov. 1, 1870	36.29	49.89	35.62	29.93	35.82	34.12	48.81	35.22	41.80	38.24	24.73	(1)	11	37.32
Roseburg, Oreg	July 15, 1877	......	......	......	......	......	......	36.92	45.08	31.44	43.08	34.77	22.48	6	35.72
Sacramento, Cal	July 1, 1877	......	......	......	......	......	......	23.45	22.37	31.99	20.71	18.06	13.48	6	21.68
Saint Louis, Mo	Nov. 1, 1870	30.40	45.03	37.88	42.99	47.74	41.28	40.83	25.70	34.56	37.37	43.15	40.10	12	38.92
Saint Michael's Fort, Alaska	June 28, 1874	......	......	......	......	......	9.37	16.18	7.26	(1)	16.61	8.20	21.73	6	13.23
Saint Paul, Minn	Nov. 1, 1870	(1)	34.75	35.51	30.66	23.67	28.80	22.78	32.39	29.76	39.16	23.14	26.70	11	29.76
Saint Vincent, Minn	Sept. 5, 1880	......	......	......	......	......	......	......	......	......	15.51	22.48	17.88	3	18.62
Salt Lake City, Utah	Mar. 19, 1874	......	......	......	23.64	21.28	16.35	19.75	13.11	10.94	16.88	15.98	14.24	9	16.91
San Carlos Agency, Ariz	June 1, 1881	......	......	......	......	......	......	......	......	......	......	15.37	12.21	2	13.79
San Diego, Cal	Nov. 1, 1871	6.04	13.01	10.91	6.80	7.24	8.12	13.87	14.71	10.37	5.00	9.74	8.01	13	9.48
Sandusky, Ohio	Aug. 2, 1877	......	......	......	......	......	......	42.91	37.71	39.44	46.31	42.53	(1)	5	41.78
Sandy Hook, N. J	Dec. 10, 1873	......	......	51.20	48.31	57.26	53.65	61.70	56.50	41.06	46.74	52.11	44.09	10	51.26
Sanford, Fla	Sept. 1, 1882	......	......	......	......	......	......	......	......	......	......	......	44.61	1	44.61
San Francisco, Cal	Mar. 8, 1871	22.45	18.55	22.52	22.63	23.54	11.93	33.26	30.76	30.07	23.73	18.67	15.43	12	22.80
Savannah, Ga	Jan. 1, 1871	63.87	48.39	57.43	49.00	64.85	50.60	52.58	45.81	50.26	38.00	47.35	48.43	12	52.13
Shaw, Fort, Mont	Apr. 1, 1880	......	......	......	......	......	......	......	......	......	14.77	14.21	12.64	3	13.87
Shreveport, La	Sept. 3, 1871	51.03	52.37	54.80	50.98	54.49	47.71	55.83	41.59	66.60	53.72	65.11	43.11	12	53.11
Sill, Fort, Ind. T	June 23, 1875	......	......	......	......	......	48.45	33.69	25.07	33.75	28.22	31.13	(1)	6	33.38
Sitka, Alaska	Mar. 30, 1881	......	......	......	......	......	......	......	......	......	(1)	102.24	102.37	2	102.30
Smithville, N. C	Oct. 15, 1875	......	......	......	......	56.23	65.01	56.88	49.08	50.13	50.64	48.27	46.67	8	52.86

Spokane Falls, Wash	Feb. 5, 1881	....	....	....	....	....	....	....	....	....	(¹)	25.99	14.87	2	20.18
Springfield, Ill	July 1, 1879	....	....	....	....	....	....	....	....	30.93	56.51	58.21	48.79	4	48.61
Stockton, Fort, Tex	Feb. 26, 1876	....	....	....	....	....	....	12.47	5.12	33.40	12.65	25.56	27.89	6	19.43
Thatcher's Island, Mass	Dec. 26, 1875	....	....	....	....	47.52	42.58	58.38	45.93	46.11	64.21	45.69	40.11	8	48.81
Thomas, Camp, Ariz	Sept. 22, 1877	....	....	....	....	....	....	....	....	(¹)	11.41	8.66	10.85	3	10.31
Toledo, Ohio	Nov. 1, 1870	27.56	35.62	25.83	28.03	34.55	35.17	32.67	30.27	35.72	45.91	33.03	34.24	12	33.21
Unalashka, Alaska	Aug. 18, 1878	....	....	....	....	....	....	....	(¹)	(¹)	(¹)	80.80	90.12	2	85.46
Verde, Fort, Ariz	Nov. 9, 1874	....	....	....	....	....	10.56	(¹)	9.00	7.21	15.37	11.87	13.09	6	11.18
Vicksburg, Miss	Sept. 10, 1871	58.27	41.45	66.10	70.05	51.79	52.96	60.86	52.31	84.19	51.94	71.56	63.75	12	60.44
Washington City	Nov. 1, 1870	30.86	45.70	34.58	41.11	47.96	52.59	60.09	32.83	38.83	42.20	46.79	45.71	12	43.27
West Las Animas, Colo	Oct. 1, 1881	....	....	....	....	....	....	....	....	....	....	(¹)	11.12	1	11.12
Wilmington, N. C	Jan. 1, 1871	59.18	58.87	52.42	49.59	66.73	83.65	54.73	51.14	51.91	51.02	52.29	64.00	12	57.92
Yankton, Dak	Apr. 1, 1873	....	....	23.93	37.15	28.84	28.81	28.73	22.73	21.68	40.95	20.63	35.21	10	28.82
Yuma, Ariz	Nov. 18, 1873	....	....	....	....	0.94	3.66	2.88	3.29	0.74	0.98	1.78	(¹)	7	2.04

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[1] Record incomplete.

Annual and mean annual precipitation at stations of the Signal Service, United States Army—Continued.

Stations.	Established.	1872.	1873.	1874.	1875.	1876.	1877.	1878.	1879.	1880.	1881.	1882.	1883.	Mean annual.	
														Years.	Mean.
		Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*		*Inches.*
New York City	Nov. 1, 1870	45.79	39.98	40.84	45.09	47.40	40.94	46.67	36.13	37.34	40.40	46.61	38.83	12	42.17
Norfolk, Va	Jan. 1, 1871	56.95	55.43	50.41	50.97	46.54	69.13	51.87	35.88	51.84	40.06	57.67	54.30	12	51.75
North Platte, Nebr	Sept. 18, 1874				15.35	11.84	25.47	18.62	20.06	17.48	22.93	17.95	30.01	9	19.97
Olympia, Wash	July 1, 1877							63.34	73.44	62.77	65.56	51.59	41.61	6	59.72
Omaha, Nebr	Nov. 1, 1870	32.48	27.04	25.75	42.89	32.51	40.95	37.05	30.31	28.52	45.74	37.68	48.92	12	35.82
Oswego, N. Y	Nov. 1, 1870	27.61	33.29	34.93	31.41	34.20	32.20	55.83	36.60	43.19	39.25	36.13	34.49	12	36.59
Palestine, Tex	Dec. 3, 1881											(1)	43.49	1	43.49
Pensacola, Fla	Oct. 27, 1879									61.30	86.02	72.01	61.55	4	70.22
Philadelphia, Pa	Jan. 1, 1871	48.36	55.28	46.25	40.22	47.39	37.26	34.53	36.75	33.58	30.21	45.58	39.17	12	41.22
Phoenix, Ariz	Aug. 18, 1876							8.52	6.40	6.82	8.91	6.94	7.40	6	7.50
Pike's Peak, Colo	Nov. 1, 1873			26.86	24.74	23.87	25.58	42.87	39.82	40.65	44.57	28.82	18.17	10	31.60
Pittsburg, Pa	Nov. 1, 1870	31.05	41.42	39.42	34.05	37.01	34.72	38.76	37.02	31.97	37.30	38.63	43.17	12	37.04
Poplar River, Mont	May 1, 1882											(1)	6.22	1	6.22
Port Huron, Mich	July 25, 1874				29.14	37.16	31.61	39.91	27.54	38.68	35.27	41.04	36.98	9	35.26
Portland, Me	Jan. 15, 1871	37.02	36.90	36.24	36.14	39.04	43.51	38.60	41.61	37.59	46.68	38.74	31.99	12	38.67
Portland, Oreg	Nov. 1, 1871	46.90	50.52	46.17	60.08	55.04	58.30	47.70	62.22	51.87	58.05	67.24	51.45	12	54.64
Prescott, Ariz	Nov. 19, 1873					16.16	(1)	15.63	12.89	10.02	15.45	15.26	16.13	7	14.51
Provincetown, Mass	Feb. 15, 1882											(1)	40.39	1	40.39
Red Bluff, Cal	July 1, 1877							48.96	33.64	26.53	24.93	21.82	13.76	6	28.27
Rio Grande City, Tex	May 28, 1875							24.43	25.61	22.31	28.13	(1)	(1)	4	25.12
Rochester, N. Y	Nov. 1, 1870	36.29	49.89	35.62	29.93	35.82	34.12	48.81	35.22	41.80	38.24	24.73	(1)	11	37.32
Roseburg, Oreg	July 15, 1877							36.92	45.03	31.44	43.68	34.77	22.48	6	35.72
Sacramento, Cal	July 1, 1877							23.45	22.37	31.99	20.71	18.06	13.48	6	21.68
Saint Louis, Mo	Nov. 1, 1870	30.40	45.03	37.88	42.99	47.74	41.26	40.83	25.70	34.56	37.37	43.15	40.10	12	38.92
Saint Michael's Fort, Alaska	June 28, 1874						9.37	16.18	7.26	(1)	16.61	8.20	21.73	6	13.23
Saint Paul, Minn	Nov. 1, 1870	(1)	34.75	35.51	30.66	29.67	28.80	22.78	32.39	29.76	30.16	23.14	26.70	11	29.76
Saint Vincent, Minn	Sept. 5, 1880										15.51	22.48	17.88	3	18.62
Salt Lake City, Utah	Mar. 19, 1874				23.64	21.28	16.35	19.75	13.11	10.94	16.88	15.98	14.24	9	16.91
San Carlos Agency, Ariz	June 1, 1881											15.37	12.21	2	13.79
San Diego, Cal	Nov. 1, 1871	6.04	13.01	10.91	6.80	7.24	8.12	13.87	14.71	10.37	5.00	9.74	8.01	12	9.48
Sandusky, Ohio	Aug. 2, 1877							42.91	37.71	39.44	46.31	42.53	(1)	5	41.78
Sandy Hook, N. J	Dec. 10, 1873			51.20	48.31	57.26	53.65	61.70	56.50	41.06	46.74	52.14	44.09	10	51.26
Sanford, Fla	Sept. 1, 1882												44.61	1	44.61
San Francisco, Cal	Mar. 8, 1871	22.45	18.55	22.52	22.63	23.54	11.93	33.26	30.76	30.07	23.73	18.67	15.43	12	22.80
Savannah, Ga	Jan. 1, 1871	63.87	48.39	57.43	49.00	64.85	59.60	52.58	45.81	50.26	38.00	47.35	48.43	12	52.13
Shaw, Fort, Mont	Apr. 1, 1880										14.77	14.21	12.64	3	13.87
Shreveport, La	Sept. 3, 1871	51.03	52.37	54.80	50.98	54.49	47.71	55.83	41.59	66.60	53.72	65.11	43.11	12	53.11
Sill, Fort, Ind. T	June 23, 1875						48.45	33.69	25.07	33.75	28.22	31.13	(1)	6	33.38
Sitka, Alaska	Mar. 30, 1881										(1)	102.24	102.37	2	102.30
Smithville, N. C	Oct. 15, 1875					56.23	65.01	56.88	49.08	50.13	50.64	48.27	46.67	8	52.86

Spokane Falls, Wash	Feb. 5, 1881	......	......	......	......	......	......	......	......	......	(1)	25.99	14.87	2	20.18
Springfield, Ill	July 1, 1879	......	......	......	......	......	......	......	......	30.93	56.51	58.21	48.79	4	48.61
Stockton, Fort, Tex	Feb. 26, 1876	......	......	......	......	......	......	12.47	5.12	33.40	12.65	25.56	27.39	6	19.43
Thatcher's Island, Mass	Dec. 26, 1875	......	......	......	......	47.52	42.58	58.38	45.93	46.11	64.21	45.69	40.11	8	48.81
Thomas, Camp, Ariz	Sept. 22, 1877	......	......	......	......	......	......	......	......	(1)	11.41	8.66	10.85	3	10.31
Toledo, Ohio	Nov. 1, 1870	27.56	35.62	25.83	28.03	34.55	35.17	32.67	30.27	35.72	45.91	33.03	34.24	12	33.21
Unalashka, Alaska	Aug. 18, 1878	......	......	......	......	......	......	......	(1)	(1)	(1)	80.80	90.12	2	85.46
Verde, Fort, Ariz	Nov. 9, 1874	......	......	......	......	......	10.56	(1)	9.00	7.21	15.37	11.87	13.00	6	11.18
Vicksburg, Miss	Sept. 10, 1871	58.27	41.45	66.10	70.05	51.79	52.96	60.86	52.31	84.19	51.94	71.56	61.75	12	60.44
Washington City	Nov. 1, 1870	30.86	45.70	34.58	41.11	47.96	52.50	60.09	32.83	38.83	42.20	46.79	45.71	12	43.27
West Las Animas, Colo	Oct. 1, 1881	......	......	......	......	......	......	......	......	......	......	(1)	11.12	1	11.12
Wilmington, N. C	Jan. 1, 1871	59.18	58.87	52.42	49.50	66.73	83.65	54.73	51.14	51.91	51.02	52.29	64.00	12	57.92
Yankton, Dak	Apr. 1, 1873	......	......	23.93	37.15	28.84	28.31	28.73	22.73	21.68	40.95	20.63	35.21	10	28.82
Yuma, Ariz	Nov. 18, 1873	......	......	......	......	0.94	3.66	2.88	3.29	0.74	0.98	1.78	(1)	7	2.04

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[1] Record incomplete.

APPENDIX 50.

Table of comparative precipitation, in inches and hundredths, at stations of the Signal Service, United States Army.

Stations.	January.			February.			March.			April.			May.			June.		
	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.
Albany, N. Y	2.75	2.43	— 0.32	2.71	3.00	+0.29	2.95	1.77	—1.18	2.89	2.65	—0.24	2.95	3.20	+0.25	4.09	6.30	+2.21
Alpena, Mich	2.02	2.19	+ 0.17	2.10	2.02	—0.08	2.21	0.66	—1.55	1.94	1.72	—0.22	3.94	4.56	+0.62	4.03	5.47	+1.44
Apache, Fort, Ariz	1.55	0.85	— 0.70	1.54	2.46	+0.92	1.09	2.03	+0.94	0.76	0.22	—0.54	0.32	0.86	+0.54	0.94	0.02	—0.92
Assinaboine, Fort, Mont	1.24	2.47	+ 1.23	0.47	0.72	+0.25	0.46	1.61	+1.15	1.44	0.43	—1.01	1.12	0.65	—0.47	1.06	0.77	—0.29
Atlanta, Ga	5.48	15.82	+10.34	6.72	3.22	—3.50	7.38	3.73	—3.65	5.22	8.20	+2.98	3.24	2.00	—1.24	3.11	2.31	—0.80
Atlantic City, N. J	3.46	5.43	+ 1.97	2.82	5.18	+2.36	4.06	3.09	—0.97	3.51	4.31	+0.80	2.41	1.78	—0.63	3.29	3.53	+0.24
Augusta, Ga	4.28	7.00	+ 2.72	4.19	1.49	—2.70	5.85	3.17	—2.68	4.44	6.29	+1.85	3.19	2.47	—0.72	3.99	5 85	+1.86
Baltimore, Md	3.04	3.16	+ 0.12	2.89	4.69	+1.80	3.95	3.68	—0.27	3.24	3.20	—0.04	2.95	1.22	—1.73	3.59	8.08	+4.49
Barnegat City, N. J	5.08	3.91	— 1.17	3.74	5.98	+2.24	5.56	3.28	—2.28	4.11	3.93	—0.18	2.92	1.97	—0.95	3.90	4.09	+0.19
Bennett, Fort, Dak	1.42	0.37	— 1.05	1.00	0.40	—0.60	1.60	0.64	—0.96	1.98	2.82	+0.84	2.72	2.85	—0.87	3.56	3.99	+0.48
Benton, Fort, Mont	0.85	0.75	— 0.10	0.50	0.45	—0.05	0.69	1.34	+0.65	0.85	1.02	+0.17	3.01	3.31	+0.30	1.79	1.93	+0.14
Bismarck, Dak	0.62	0.25	— 0.37	0.66	0.66	±0.00	1.31	0.38	—0.93	3.11	1.57	—1.54	3.58	1.15	—2.43	3.62	3.84	+0.22
Block Island, R. I	5.36	3.95	— 1.41	7.24	4.09	—3.15	5.24	2.47	—2.77	3.37	3.49	+0.12	5.51	2.89	—2.62	7.90	1.54	—6.36
Boise City, Idaho	2.30	3.77	+ 1.47	1.96	1.20	—0.76	1.47	0.28	—1.19	1.39	0.61	—0.78	0.82	2.12	+1.30	0.60	0.20	—0.40
Boston, Mass	4.06	3.59	— 0.47	3.59	2.74	—0.85	5.19	2.33	—2.86	4.11	2.83	—1.28	3.35	5.11	+1.76	3.75	2.07	—1.68
Brownsville, Tex	2.23	1.22	— 1.01	2.03	1.01	—1.02	1.47	0.63	—0.84	0.70	0.38	—0.32	2.92	0.83	—2.09	1.17	5.66	+4.49
Buffalo, N. Y	2.68	1.69	— 0.99	2.29	4.04	+1.75	3.15	1.08	—2.07	2.42	2.34	—0.09	2.63	6.45	+3.82	2.99	5.46	+2.47
Buford, Fort, Dak	0.59	1.98	+ 1.39	0.62	0.36	—0.26	0.52	0.91	+0.39	1.44	0.48	—0.96	3.05	0.59	—2.46	3.53	0.97	—2.56
Cairo, Ill	4.55	2.74	— 1.81	4.10	8.52	+4.42	4.38	2.15	—2.23	4.26	5.64	+1.38	4.29	3.85	—0.44	4.52	6.11	+1.59
Cape Henry, Va	4.71	5.34	+ 0.63	3.60	3.72	+0.12	6.23	4.41	—1.82	5.31	9.72	+4.41	3.45	3.20	—0.25	3.63	6.14	+2.51
Cape May, N. J	4.15	5.00	+ 0.85	3.41	5.67	+2.26	5.19	4.66	—0.53	3.21	4.69	+1.48	2.75	1.17	—1.58	3.66	5.59	+1.93
Cedar Keys, Fla	5.19	5.66	+ 0.47	3.96	0.04	—3.92	3.10	5.03	+1.93	2.39	4.12	+1.73	2.97	1.97	—1.00	6.67	4.05	—2.62
Charleston, S. C	3.74	4.06	+ 0.32	3.87	0.92	—2.95	4.44	4.84	+0.40	5.16	3.47	—1.69	4.37	8.62	+4.25	5.23	2.88	—2.35
Charlotte, N. C	5.02	8.87	+ 3.85	4.00	5.47	+1.47	4.56	6.54	+1.98	4.40	6.05	+1.65	2.65	1.39	—1.26	2.59	5.45	+2.86
Chattanooga, Tenn	8.10	9.31	+ 1.21	5.51	3.34	—2.17	6.71	4.95	—1.76	5.64	6.55	+0.91	4.16	2.45	—1.71	3.57	2.25	—1.32
Cheyenne, Wyo	0.18	0.88	+ 0.70	0.12	0.25	+0.13	0.45	0.85	+0.40	0.89	2.76	+1.87	2.00	3.68	+1.68	1.23	3.67	+2.44
Chicago, Ill	2.06	1.74	— 0.32	2.07	4.74	+2.67	2.99	0.42	—2.57	3.64	3.72	+0.08	3.76	7.32	+3.56	4.35	5.61	+1.26
Chincoteague, Va	4.72	4.14	— 0.58	4.27	2.53	—1.74	3.66	2.67	—0.99	2.55	2.77	+0.22	2.28	1.90	—0.38	2.50	1.26	—1.24
Cincinnati, Ohio	3.60	2.82	— 0.78	3.34	8.22	+4.88	4.00	3.48	—0.52	3.20	3.72	+0.52	3.34	5.49	+2.15	5.06	3.61	—1.45
Cleveland, Ohio	2.58	1.55	— 1.03	2.28	6.77	+4.49	3.31	1.34	—1.97	2.53	2.10	—0.43	2.89	6.50	+3.61	4.37	3.77	—0.60
Columbus, Ohio	3.27	3.20	— 0.07	3.38	6.18	+2.80	3.74	3.20	—0.54	3.23	2.85	—0.38	4.22	6.38	+2.16	4.00	4.25	+0.25
Concho, Fort, Tex	1.27	0.18	— 1.09	1.40	1.20	—0.20	0.79	3.99	+3.20	1.67	0.12	—1.55	2.87	5.35	+2.48	2.65	1.52	—1.13
Custer, Fort, Mont	1.19	0.22	— 0.97	0.38	0.09	—0.29	0.20	1.03	+0.83	1.07	1.86	+0.79	3.96	2.96	+1.00	2.39	1.50	—0.89

Davenport, Iowa	1.80	1.16	—0.64	1.37	4.42	+3.05	2.42	0.73	—1.69	3.26	3.33	+0.07	4.43	5.46	+1.03	5.20	4.38	—0.82
Davis, Fort, Tex	0.81	0.02	—0.79	0.25	0.02	—0.23	0.20	0.52	+0.32	0.33	0.90	+0.57	1.73	1.00	—0.73	2.46	1.71	—0.75
Dayton, Wash. T	3.65	5.48	+1.83	4.46	1.17	—3.29	1.90	2.44	+0.54	3.80	1.64	—2.16	1.72	2.90	+1.18	1.13	0.08	—1.05
Deadwood, Dak	0.97	0.74	—0.23	0.87	1.32	+0.45	1.80	0.84	—0.96	5.48	5.69	+0.21	5.20	10.33	+5.13	4.20	5.26	+1.06
Delaware Breakwater, Del	4.42	3.25	—1.17	1.97	4.07	+2.10	3.60	2.84	—0.76	1.28	3.23	+1.95	1.66	0.91	—0.75	2.12	4.09	+1.97
Denver, Colo	0.54	2.35	+1.81	0.43	0.45	+0.02	0.92	0.21	—0.71	1.58	3.10	+1.52	2.94	4.80	+1.86	1.67	0.85	—0.82
Des Moines, Iowa	0.89	1.72	+0.83	1.49	2.51	+1.02	1.61	0.57	—1.04	2.30	3.48	+1.18	5.73	9.76	+4.03	9.69	7.75	—1.94
Detroit, Mich	2.17	1.69	—0.48	2.34	3.22	+0.88	2.98	1.55	—1.43	2.44	1.53	—0.91	3.61	5.11	+1.51	3.92	4.32	+0.40
Dodge City, Kans	0.26	0.44	+0.18	0.47	1.42	+0.95	0.73	0.42	—0.31	1.11	2.40	+1.29	4.20	5.41	+1.21	2.33	4.31	+1.98
Dubuque, Iowa	1.47	1.59	+0.12	1.41	2.60	+1.19	2.52	0.32	—2.20	3.03	1.93	—1.10	3.57	7.13	+3.56	5.76	5.34	—0.42
Duluth, Minn	1.03	1.12	+0.09	1.05	0.78	—0.27	1.79	0.38	—1.41	2.12	1.20	—0.92	4.10	2.07	—2.03	5.82	4.14	—1.68
Eastport, Me	3.14	3.20	+0.06	3.74	3.63	—0.11	5.65	3.61	—2.04	3.50	2.25	—1.25	4.08	6.60	+2.52	4.18	5.23	+1.05
Elliott, Fort, Tex	0.27	([1])	—0.27	0.32	0.53	+0.21	0.31	0.04	—0.27	0.69	0.82	+0.13	5.74	4.36	—1.38	2.05	1.66	—0.39
El Paso, Tex	0.89	0.10	—0.79	0.46	0.40	—0.06	0.22	2.09	—1.87	0.10	0.10	±0.00	0.48	0.02	—0.46	0.13	0.04	—0.09
Erie, Pa	3.40	2.66	—0.74	2.80	5.94	+3.14	3.33	1.25	—2.08	2.53	2.94	+0.41	3.26	6.29	+3.03	4.13	3.73	—0.40
Escanaba, Mich	1.34	1.29	—0.05	1.29	1.27	—0.02	1.89	0.33	—1.56	1.78	1.69	—0.09	4.22	1.96	—2.26	4.93	5.43	+0.50
Galveston, Tex	3.55	6.46	+2.91	3.27	1.15	—2.12	2.82	4.93	+2.11	3.22	1.26	—1.96	3.99	6.01	+2.02	4.31	1.04	—3.27
Grand Haven, Mich	2.24	2.44	+0.20	1.86	4.30	+2.44	2.68	0.57	—2.11	2.73	1.49	—1.24	3.38	6.02	+2.64	4.21	9.24	+5.03
Grant, Fort, Ariz	0.62	1.21	+0.59	0.61	1.40	+0.79	0.96	1.27	+0.31	0.25	0.03	—0.22	0.21	1.16	+0.95	0.64	1.26	+0.62
Hatteras, N. C	5.43	13.90	+8.47	5.53	3.08	—2.45	8.12	7.60	—0.52	5.94	6.74	+0.80	3.56	7.81	+4.25	4.75	6.76	+2.01
Helena, Mont	1.97	0.57	—1.40	0.44	0.73	+0.29	0.16	0.73	+0.57	1.57	0.53	—1.04	1.13	1.54	+0.41	1.72	1.74	+0.02
Huron, Dak	0.14	0.17	+0.03	0.25	0.47	+0.22	0.80	0.42	—0.38	4.18	2.14	—2.04	4.50	4.45	—0.05	5.86	4.33	—1.53
Indianapolis, Ind	3.09	1.32	—1.77	3.38	7.19	+3.81	4.30	3.25	—1.05	3.55	2.73	—0.82	4.28	4.02	—0.26	5.64	4.59	—1.05
Indianola, Tex	2.18	0.97	—1.21	2.12	0.81	—1.31	2.40	5.38	+2.98	1.51	1.99	+0.48	2.92	3.59	+0.67	2.40	1.72	—0.68
Jacksonville, Fla	3.14	4.77	+1.63	3.72	0.48	—3.24	3.06	3.84	—0.78	3.47	4.48	+1.01	3.85	3.16	—0.69	5.24	7.05	+1.81
Keokuk, Iowa	1.70	1.24	—0.46	1.34	6.13	+4.79	2.40	1.07	—1.33	3.27	2.97	—0.30	4.22	4.87	+0.65	5.61	5.88	+0.27
Key West, Fla	2.27	2.82	+0.55	1.92	0.80	—1.12	0.64	0.87	+0.23	1.50	0.54	—0.96	4.27	5.58	+1.31	4.12	3.29	—0.83
Kitty Hawk, N. C	5.78	8.16	+2.38	3.79	2.87	—0.92	5.95	6.28	+0.33	5.50	8.78	+3.28	2.46	7.76	+5.30	4.52	6.57	+2.05
Knoxville, Tenn	5.72	7.94	+2.22	5.02	3.46	—1.56	5.59	4.01	—1.58	5.69	8.17	+2.48	3.33	3.31	—0.02	4.51	2.99	—1.52
La Crosse, Wis	1.20	1.54	+0.34	1.16	1.25	+0.09	2.04	0.13	—1.91	2.00	1.49	—0.51	3.55	3.87	+0.32	4.99	3.92	—1.07
Leavenworth, Kans	1.40	0.75	—0.65	1.48	2.92	+1.44	2.52	1.05	—1.47	3.80	0.97	—2.83	4.86	7.33	+2.47	5.48	10.84	+5.36
Lewiston, Idaho	2.08	3.56	+1.48	1.77	0.82	—0.95	0.48	3.21	+2.73	1.33	1.12	—0.21	0.82	2.01	+1.19	1.24	0.01	—1.23
Little Rock, Ark	4.96	5.44	+0.48	9.01	6.47	—2.54	5.41	4.24	—1.17	4.07	8.92	+4.85	7.95	4.17	—3.78	3.74	3.01	—0.73
Los Angeles, Cal	2.14	1.62	—0.52	2.65	3.47	+0.82	1.77	2.87	+1.10	2.05	0.15	—1.90	0.32	2.02	+1.70	0.02	0.03	+0.01
Louisville, Ky	4.32	3.52	—0.80	3.98	8.72	+4.74	4.53	3.22	—1.31	4.54	6.63	+2.09	3.88	2.59	—1.29	4.79	1.98	—2.81
Lynchburg, Va	3.60	4.58	+0.98	2.98	2.94	—0.04	3.76	3.11	—0.65	3.55	4.84	+1.29	3.04	1.19	—1.85	3.36	4.04	+0.68
Macon, Fort, N. C	4.68	8.85	+4.17	3.47	3.14	—0.33	7.32	5.56	—1.76	5.06	0.42	—4.64	1.92	6.67	+4.75	4.62	10.89	+6.27
Marquette, Mich	1.06	2.36	+1.30	1.33	1.43	+0.10	1.46	0.62	—0.84	1.46	2.02	+0.56	3.06	2.65	—0.41	4.34	4.56	+0.22
Memphis, Tenn	6.02	4.83	—1.19	5.24	8.09	+2.85	6.09	4.43	—1.66	6.78	4.66	—2.12	4.46	6.55	+2.09	5.20	4.92	—0.28
Milwaukee, Wis	2.01	1.66	—0.35	1.86	2.64	+0.78	3.04	0.28	—2.76	3.18	0.86	—2.32	3.64	5.67	+2.03	4.16	2.84	—1.32
Mobile, Ala	4.42	8.80	+4.38	4.63	3.63	—1.00	7.88	4.21	—3.67	5.96	7.25	+1.29	4.37	8.51	+4.14	5.18	9.43	+4.25
Montgomery, Ala	4.30	7.20	+2.90	5.93	2.00	—3.93	6.82	3.61	—3.21	6.63	8.16	+1.53	4.07	2.62	—1.45	4.21	5.02	+0.81
Moorhead, Minn	0.97	1.19	+0.22	1.46	0.74	—0.72	1.72	0.38	—1.34	1.23	1.65	+0.42	4.06	3.59	—0.47	5.51	2.82	—2.19
Mount Washington, N. H	4.29	4.16	—0.13	3.71	5.65	+1.94	7.22	4.18	—3.04	6.09	6.29	+0.20	6.40	9.10	+2.70	9.44	11.30	+1.86
Nashville, Tenn	5.11	3.73	—1.38	5.14	7.89	+2.75	5.30	3.94	—1.36	5.54	9.10	+3.56	3.41	4.79	+1.38	4.04	3.79	—0.25
New Haven, Conn	4.26	3.60	—0.66	4.15	5.00	+0.85	5.66	1.64	—4.02	4.53	2.23	—2.30	3.63	4.52	+0.89	3.32	1.83	—1.49
New London, Conn	3.93	4.38	+0.45	3.26	6.02	+2.76	5.16	3.35	—1.81	3.92	3.61	—0.31	3.08	5.73	+2.65	3.37	3.30	—0.07
New Orleans, La	5.10	10.63	+5.53	4.59	1.59	—3.00	5.81	5.01	—0.80	5.68	14.20	+8.52	5.63	5.41	—0.22	5.53	12.05	+6.52
New York City	3.52	3.22	—0.30	3.12	4.58	+1.46	4.27	1.63	—2.64	3.21	3.82	+0.61	2.72	3.03	+0.31	3.26	4.00	+0.74
Norfolk, Va	3.64	6.91	+3.27	3.85	3.84	—0.01	4.46	3.03	—1.43	3.83	9.76	+5.93	3.49	4.09	+0.60	3.95	6.52	+2.57

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[1] Precipitation inappreciable.

Table of comparative precipitation, in inches and hundredths, at selected stations of the Signal Service, United States Army—Continued.

Stations.	January.			February.			March.			April.			May.			June.		
	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.
North Platte, Nebr	0.59	1.20	+0.61	0.29	1.38	+1.09	0.51	0.47	—0.04	1.64	3.11	+1.47	3.06	4.07	+1.01	3.54	7.49	+3.95
Olympia, Wash. T	10.10	5.68	−4.42	12.17	3.18	—8.99	6.84	2.99	—3.85	3.06	10.78	+7.72	2.80	2.55	—0.25	1.01	0.21	—0.80
Omaha, Nebr	0.51	1.01	+0.50	0.78	1.09	+0.31	1.39	0.52	—0.87	3.32	3.20	—0.12	4.79	11.29	+6.50	6.29	12.70	+6.41
Oswego, N. Y	3.05	1.16	−1.89	2.53	2.76	+0.23	3.39	0.84	—2.55	2.14	1.39	—0.75	2.46	7.03	+4.57	3.39	4.58	+1.19
Pensacola, Fla	3.92	9.97	+6.05	5.62	2.12	—3.50	4.29	3.26	—1.03	4.19	6.74	+2.55	3.59	7.47	+3.88	3.66	9.36	+5.70
Philadelphia, Pa	3.18	4.13	+0.95	2.84	5.04	+2.20	3.38	2.02	—1.36	3.22	2.44	—0.78	2.86	1.91	—0.95	3.42	5.91	+2.49
Pike's Peak, Colo	1.89	0.54	−1.35	1.43	0.49	—0.94	2.31	0.61	—1.70	3.83	1.68	—2.15	4.27	2.80	—1.47	1.94	1.76	—0.18
Pittsburg, Pa	2.84	3.22	+0.38	2.17	4.92	+2.75	3.09	2.51	—0.58	2.50	3.69	+1.19	2.47	5.38	+2.91	3.63	4.73	+1.10
Port Huron, Mich	2.00	1.65	−0.35	2.10	4.00	+1.90	4.23	2.36	—1.87	2.33	1.26	—1.07	2.94	5.69	+2.75	3.78	5.71	+1.93
Portland, Maine	3.28	2.53	−0.75	2.92	2.81	—0.11	3.26	1.58	—1.68	2.93	1.33	—1.60	3.01	2.91	—0.10	3.70	2.94	—0.76
Portland, Oreg	6.76	13.71	+6.95	8.63	2.34	—6.29	7.35	6.40	—0.95	3.09	7.88	+4.79	2.51	1.67	—0.84	1.98	0.08	—1.90
Prescott, Ariz	1.31	0.31	−1.00	0.83	0.63	—0.20	0.70	2.33	+1.63	0.81	0.86	+0.05	0.51	0.15	—0.36	0.16	0.09	—0.07
Red Bluff, Cal	7.62	0.87	−6.75	5.74	0.39	—5.35	2.89	2.60	—0.29	3.07	1.96	—1.11	1.05	2.96	+1.91	0.19	(1)	—0.19
Rio Grande City, Tex	1.26	(2)	(2)	0.91	(2)	(2)	1.58	0.44	—1.14	0.83	1.10	+0.27	2.69	0.70	—1.99	0.66	6.82	+6.14
Rochester, N. Y	3.50	0.94	−2.56	2.71	2.28	—0.43	3.55	1.65	—1.90	2.72	1.61	—1.11	3.04	6.53	+3.49	3.16	(2)	(2)
Roseburg, Oreg	7.72	2.98	−4.74	5.68	1.17	—4.51	4.51	1.73	—2.78	2.93	2.87	—0.06	1.84	2.29	+0.45	1.03	0.01	—1.02
Sacramento, Cal	4.42	2.23	−2.19	4.24	1.11	—3.13	2.96	3.70	+0.74	4.31	0.67	—3.64	0.52	2.85	+2.33	0.15	0.00	—0.15
Saint Louis, Mo	2.29	0.94	−1.35	2.87	5.88	+3.01	3.10	2.29	—0.81	3.85	3.81	—0.04	3.94	2.89	—1.05	4.80	5.04	+0.24
Saint Michael's, Fort, Alaska	0.78	2.63	+1.85	0.11	0.34	+0.23	0.17	0.96	+0.79	0.55	0.50	—0.05	0.07	0.63	+0.56	0.07	1.84	+1.77
Saint Paul, Minn	1.11	0.64	−0.47	1.12	0.44	—0.68	1.77	0.06	—1.71	1.86	4.92	+3.06	3.85	2.12	—1.73	4.98	7.04	+2.06
Saint Vincent, Minn	0.44	0.33	−0.11	0.70	0.24	—0.46	0.87	0.11	—0.76	0.86	0.73	—0.13	3.47	2.13	—1.34	3.41	1.03	−2.38
Salt Lake City, Utah	1.39	1.47	+0.08	1.35	0.72	—0.63	1.85	1.75	—0.10	2.34	2.92	+0.58	2.31	0.98	—1.33	0.75	0.33	−0.42
San Diego, Cal	1.92	1.09	−0.83	2.17	0.95	—1.22	1.03	0.41	—0.62	0.71	0.31	—0.40	0.18	1.14	+0.96	0.04	0.08	+0.04
Sandusky, Ohio	2.42	1.01	−1.41	2.93	4.12	+1.19	3.34	0.69	—2.65	2.79	(2)	(2)	3.34	(2)	(2)	5.06	(2)	(2)
Sandy Hook, N. J	4.13	3.35	—0.78	3.30	4.22	+0.92	5.94	1.45	—4.49	4.57	5.79	+1.22	3.89	4.66	+0.77	4.28	4.94	+0.66
San Francisco, Cal	5.39	1.92	—3.47	4.22	1.04	—3.18	2.87	3.01	+0.14	1.83	1.51	—0.32	0.48	3.52	+3.04	0.17	0.01	—0.16
Savannah, Ga	3.08	7.34	+4.26	3.18	2.34	—0.84	4.12	3.31	—0.81	4.93	3.92	−1.01	2.83	5.22	+2.39	6.80	5.93	—0.87
Shaw, Fort, Mont	1.64	0.54	—1.10	0.36	0.31	—0.05	0.38	1.05	+0.67	0.80	0.56	—0.24	1.77	2.30	+0.53	2.61	2.38	—0.23
Shreveport, La	4.88	3.54	—1.34	4.99	7.24	+2.25	4.97	5.85	+0.88	6.09	4.45	−1.64	4.74	1.40	—3.34	2.90	5.70	+2.80
Sill, Fort, Ind. T	1.34	0.20	—1.14	1.80	2.27	+0.47	1.30	1.68	+0.38	2.58	1.55	—1.08	5.63	1.46	—4.17	4.94	5.55	+0.61
Sitka, Alaska	14.20	4.69	−9.51	16.35	6.92	−9.43	3.53	16.00	+12.47	4.21	4.78	+0.57	3.00	3.70	+0.70	2.62	4.13	+1.51
Smithville, N. C	3.84	5.63	+1.79	3.21	2.33	−0.88	4.07	6.13	+ 2.06	3.35	5.45	+2.10	2.77	3.60	+0.83	3.02	6.95	+3.93
Spokane Falls, Wash. T	4.54	2.13	−2.41	3.05	2.95	−0.10	1.06	0.75	− 0.31	2.02	1.93	−0.09	1.02	2.11	+1.09	1.20	0.60	−0.60
Springfield, Ill	2.01	1.96	—0.05	5.55	7.53	+1.98	3.91	1.36	− 2.55	3.01	4.42	+1.41	6.40	6.61	+0.21	6.71	8.40	+1.69
Fort Stockton, Tex	0.36	0.00	−0.36	0.51	0.54	+0.03	0.55	1.77	+ 1.22	0.30	0.89	+0.59	1.20	2.25	+1.05	2.10	1.11	−0.99
Thomas, Camp, Ariz	0.18	1.23	+1.05	0.57	1.54	+0.97	0.96	1.83	+ 0.87	0.24	0.00	−0.24	0.18	0.79	+0.61	0.60	0.00	—0.60
Toledo, Ohio	2.07	1.77	−0.30	1.74	4.28	+2.54	2.39	0.78	− 1.61	2.38	1.57	−0.81	2.87	5.69	+2.82	3.84	2.99	−0.85

Unalashka, Alaska	7.10	17.78	+10.68	4.21	2.88	−1.33	4.13	10.36	+ 6.23	2.10	5.77	+3.67	3.46	10.85	+7.39	2.68	1.48	−1.20
Verde, Fort, Ariz	0.82	0.44	− 0.38	0.49	1.35	+0.86	0.95	1.63	+ 0.68	0.67	0.12	−0.55	0.33	0.27	−0.06	0.36	0.04	−0.32
Vicksburg, Miss	5.06	7.65	+ 2.59	5.07	6.70	+1.63	7.16	3.19	+ 3.97	7.13	6.99	−0.14	5.45	2.16	−3.29	3.75	4.96	+1.21
Washington City	3.16	3.15	− 0.01	2.66	5.08	+2.42	4.11	3.27	− 0.84	2.99	4.09	+1.10	3.02	2.50	−0.52	3.87	8.55	+4.68
Wilmington, N. C	3.64	6.33	+ 2.69	3.53	2.09	−1.44	4.21	5.78	+ 1.57	3.30	5.01	+1.71	4.11	4.79	+0.68	5.52	10.84	+5.32
Yankton, Dak	0.56	1.06	+ 0.50	0.80	0.73	−0.07	1.21	1.42	+ 0.21	2.58	5.71	+2.18	4.48	8.76	+4.28	5.52	4.40	−1.12
Yuma, Ariz	0.35	0.96	+ 0.61	0.49	0.68	+0.19	0.09	(¹)	− 0.09	0.10	(¹)	−0.10	0.01	0.00	−0.01	0.01	0.00	−0.01

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[1] Precipitation inappreciable.

[2] No record.

Table of comparative precipitation, in inches and hundredths, at stations of the Signal Service, United States Army—Continued.

Stations.	July.			August.			September.			October.			November.			December.		
	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Amount to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.
Albany, N. Y	4.31	5.96	+1.65	3.10	3.69	+0.59	3.70	3.19	—0.51	3.08	3.49	+0.41	2.64	1.14	—1.50	2.72	2.55	—0.17
Alpena, Mich	3.43	5.85	+2.43	3.73	1.36	—2.37	4.86	2.45	—2.41	4.88	3.38	—1.50	2.89	3.46	+0.57	2.05	2.20	+0.15
Apache, Fort, Ariz	5.04	5.46	+0.42	5.04	4.26	—0.78	2.12	0.60	—1.52	1.97	1.39	—0.58	1.25	0.02	—1.23	1.36	3.48	+2.12
Assinaboine, Fort, Mont	2.41	0.24	—2.17	1.58	2.59	+1.01	1.40	0.65	—0.75	0.61	0.98	+0.37	0.45	3.76	+3.31	1.02	0.23	—0.79
Atlanta, Ga	4.02	1.06	—2.96	4.58	2.73	—1.85	3.73	1.38	—2.35	3.01	1.52	—1.49	5.03	4.72	—0.31	6.25	4.84	—1.41
Atlantic City, N. J	3.01	2.83	—0.18	5.46	3.21	—2.25	3.65	5.31	+1.66	2.42	6.18	+3.76	3.62	1.25	—2.37	4.19	2.54	—1.65
Augusta, Ga	4.71	2.21	—2.50	5.10	2.16	—2.94	4.19	1.25	—2.94	2.28	1.69	—0.59	4.33	3.73	—0.60	4.36	2.59	—1.77
Baltimore, Md	4.14	3.10	—1.04	4.60	2.72	—1.88	4.41	3.49	—0.92	2.92	2.63	—0.15	3.18	1.37	—1.81	3.13	2.98	—0.15
Barnegat City, N. J	4.25	2.43	—1.82	5.15	4.84	—0.31	5.52	6.51	+0.99	3.26	6.51	+3.25	4.75	1.06	—3.69	4.48	2.83	—1.65
Bennett, Fort, Dak	1.87	1.79	—0.08	1.28	1.88	+0.60	1.88	0.30	—1.58	0.61	1.19	+0.58	0.43	(1)	—0.43	0.20	1.18	+0.98
Benton, Fort, Mont	1.85	0.16	—1.69	1.08	1.01	—0.07	1.08	0.93	—0.15	0.79	1.64	+0.85	0.92	0.36	—0.56	0.69	0.11	—0.58
Bismarck, Dak	2.32	1.32	—1.00	2.92	0.98	—1.94	1.50	0.04	—1.46	1.05	3.88	+2.83	0.76	0.26	—0.50	0.65	1.33	+0.68
Block Island, R. I	2.62	3.53	+0.91	2.89	1.74	—1.15	4.59	2.60	—1.99	4.59	7.38	+2.79	4.25	3.16	—1.09	4.55	2.85	—1.70
Boise City, Idaho	0.14	(2)	(2)	0.11	(1)	—0.11	0.40	0.20	—0.20	1.24	4.06	+2.82	0.88	0.46	—0.42	1.81	2.27	+0.46
Boston, Mass	4.00	2.73	—1.27	4.65	0.39	—4.26	3.43	1.50	—1.93	4.07	6.40	+2.33	5.44	2.08	—3.36	3.56	3.71	+0.15
Brownsville, Tex	2.43	4.02	+1.59	5.85	1.97	—3.88	5.14	7.74	+2.60	3.55	1.65	—1.90	2.29	33.2	+1.03	2.27	2.59	+0.32
Buffalo, N. Y	3.58	3.35	—0.23	2.83	2.30	—0.53	3.25	2.11	—1.11	4.01	3.58	—0.43	3.60	29.3	—0.67	3.47	2.74	—0.73
Buford, Fort, Dak	2.84	1.69	—1.15	0.95	1.96	+1.01	1.12	0.22	—0.90	0.96	1.41	+0.45	0.43	01.4	—0.29	1.34	0.11	—1.23
Cairo, Ill	3.71	7.95	+4.24	2.88	1.73	—1.15	2.56	0.34	—2.22	3.13	6.07	+3.84	4.13	4.36	+0.23	3.42	2.18	—1.24
Cape Henry, Va	6.11	5.24	—0.87	5.60	3.48	—2.12	5.75	5.39	—0.36	3.85	7.86	+4.01	4.88	0.74	—4.14	4.76	2.02	—2.74
Cape May, N. J	3.37	2.39	—0.98	5.99	3.03	—2.96	4.45	4.59	+0.14	3.11	8.63	+5.52	3.76	3.39	—0.37	4.17	3.31	—0.86
Cedar Keys, Fla	10.43	5.09	—5.34	1.95	3.37	—8.58	7.06	2.77	—4.29	5.46	0.23	—5.23	3.28	0.93	—2.35	3.83	0.82	—3.01
Charleston, S. C	7.04	8.93	+1.89	17.24	0.05	+2.81	6.78	2.36	—4.42	5.31	1.33	—3.98	3.71	1.08	—2.63	3.71	2.81	—0.90
Charlotte, N. C	5.37	5.23	—0.14	5.99	12.00	—3.99	2.95	4.00	+1.05	3.86	4.81	+0.95	3.80	4.65	+0.85	5.58	8.13	+2.45
Chattanooga, Tenn	3.73	2.06	—1.67	4.42	5.31	+0.89	4.26	3.40	—0.86	3.46	3.93	+0.47	4.83	6.79	+1.96	6.34	3.82	—2.52
Cheyenne, Wyo	1.82	1.45	—0.37	1.36	2.18	+0.82	0.86	0.90	+0.04	0.70	1.66	+0.96	0.28	0.16	—0.12	0.13	0.80	+0.67
Chicago, Ill	3.83	5.53	+1.70	2.78	1.21	—1.57	2.94	1.36	—1.58	3.54	7.36	+3.82	2.77	5.26	+2.49	2.11	1.59	—0.52
Chincoteague, Va	2.78	5.82	+3.04	4.41	7.43	+3.02	2.71	4.05	+1.34	2.60	6.65	+4.05	3.70	1.21	—2.49	4.23	1.92	—2.31
Cincinnati, Ohio	4.46	2.21	—2.25	4.34	2.10	—2.24	2.20	1.33	—0.87	2.67	8.39	+5.72	3.36	4.87	+1.51	3.84	5.61	+1.77
Cleveland, Ohio	4.25	3.75	—0.50	3.47	2.72	—0.75	3.90	4.03	+0.13	3.10	3.56	+0.46	2.65	2.36	—0.29	2.84	2.68	—0.16
Columbus, Ohio	4.01	3.75	—0.26	4.36	2.54	—1.82	2.28	2.43	+0.15	3.37	6.11	+2.74	3.70	3.87	+0.17	3.94	4.12	+0.18
Concho, Fort, Tex	3.92	3.74	—0.18	4.30	3.05	—1.25	4.55	3.98	—0.57	1.74	8.02	+6.28	1.37	0.29	—1.08	1.16	1.20	+0.04
Custer, Fort, Mont	1.49	0.77	—0.72	0.90	1.01	+0.11	0.65	0.46	—0.19	1.08	0.97	—0.11	0.38	1.10	+0.72	1.05	1.87	+0.82
Davenport, Iowa	3.90	3.66	—0.24	3.80	1.02	—2.78	3.38	0.73	—2.65	2.61	5.13	+2.52	2.04	3.58	+1.54	1.58	0.99	—0.59
Davis, Fort, Tex	4.43	3.62	—0.81	5.82	3.07	—2.75	1.94	1.49	—0.45	2.33	0.42	—1.91	0.46	0.64	+0.18	0.32	0.81	+0.49

Dayton, Wash	1.05	0.00	—1.05	0.55	0.30	—0.25	0.87	0.09	—0.78	3.03	1.44	— 1.59	2.36	3.11	+0.75	5.49	2.79	—2.70
Deadwood, Dak	2.42	1.82	—0.60	1.84	1.32	—0.52	0.68	0.11	—0.57	1.75	0.80	— 0.95	1.12	0.45	—0.67	1.61	1.01	—0.60
Delaware Breakwater, Del	3.11	1.98	—1.13	4.12	1.89	—2.23	2.64	2.62	—0.02	2.39	5.12	+ 2.73	2.46	1.58	—0.88	2.44	2.26	—0.18
Denver, Col	1.86	2.27	+0.41	1.61	0.75	—0.86	0.95	1.08	+0.18	0.72	1.49	+ 0.77	0.76	0.32	—0.44	0.57	2.32	+1.75
Des Moines, Iowa	3.62	2.37	—1.25	3.86	2.83	—1.03	3.00	1.88	—1.12	4.66	4.42	— 0.24	3.12	1.32	—1.80	1.55	1.08	—0.47
Detroit, Mich	4.05	5.29	+1.24	3.09	0.90	—2.19	2.77	1.50	—1.27	2.90	2.55	— 0.35	2.58	2.24	—0.34	2.79	2.67	—0.12
Dodge City, Kans	3.12	2.61	—0.51	3.00	5.66	+2.66	1.14	1.32	+0.18	1.10	3.32	+ 2.22	0.70	0.12	—0.58	0.63	1.07	+0.44
Dubuque, Iowa	5.04	7.90	+2.86	3.50	2.70	—0.80	5.25	2.09	—3.16	2.98	4.44	+ 1.46	2.49	1.65	—0.84	1.56	1.88	+0.32
Duluth, Minn	4.29	2.48	—1.81	3.49	0.98	—2.51	4.76	2.21	—2.55	3.07	3.19	+ 0.12	1.82	1.63	—0.19	1.27	3.02	+1.75
Eastport, Me	4.39	9.07	+4.68	3.42	0.49	—2.93	3.93	2.49	—1.44	4.44	8.41	+ 3.97	4.69	3.76	—0.93	3.30	4.43	+1.13
Elliott, Fort, Tex	3.68	2.87	—0.81	1.25	6.56	+5.31	2.30	4.97	+2.67	1.80	5.32	+ 3.52	0.49	0.04	—0.45	0.28	0.84	+0.56
El Paso, Tex	3.94	2.84	—1.10	2.49	1.34	—1.15	0.67	2.51	+1.84	0.78	2.03	+ 1.25	0.53	0.67	+0.14	0.54	0.84	+0.30
Erie, Pa	3.24	3.94	+0.70	3.17	2.44	—0.73	4.35	4.41	+0.06	4.37	4.00	— 0.37	4.52	3.47	—1.05	3.36	3.74	+0.38
Escanaba, Mich	3.37	4.74	+1.37	4.30	1.17	—3.13	4.15	2.92	—1.23	3.66	3.93	+ 0.27	2.58	3.62	+1.04	1.51	1.67	+0.16
Galveston, Tex	3.99	1.38	—2.61	6.00	1.09	—4.91	6.43	3.22	—3.21	5.52	6.78	+ 1.26	5.30	4.88	—0.42	4.76	2.91	—1.85
Grand Haven, Mich	2.98	7.96	+4.98	3.12	0.46	—2.66	4.04	2.29	—1.75	3.89	3.67	— 0.22	3.22	4.86	+1.64	2.30	1.54	—0.76
Grant, Fort, Ariz	4.44	2.90	—1.54	3.82	3.07	—0.75	1.48	0.42	—1.06	0.67	1.21	+ 0.54	0.61	0.11	—0.50	1.23	1.44	+0.21
Hatteras, N. C	6.22	6.20	—0.02	6.67	3.13	—3.54	7.77	9.89	+2.12	7.60	3.89	— 3.71	5.72	4.50	—1.22	6.64	3.46	—3.18
Helena, Mont	1.06	0.32	—0.74	1.10	(²)	—(²)	2.05	(²)	(²)	1.46	(²)	(²)	0.76	0.66	—0.10	1.83	1.02	—0.81
Huron, Dak	4.73	5.20	+0.47	3.88	1.77	—2.11	1.98	1.68	—0.30	2.74	1.96	— 0.78	0.53	0.05	—0.48	0.14	0.61	+0.47
Indianapolis, Ind	5.75	6.12	+0.37	3.38	2.48	—0.90	2.58	2.72	+0.14	3.04	8.56	+ 5.52	3.65	6.80	+3.15	3.25	4.34	+1.09
Indianola, Tex	2.76	0.61	—2.15	4.74	0.32	—4.42	6.21	9.86	+3.65	3.72	2.46	— 1.26	3.29	1.21	—2.08	3.45	1.77	—1.68
Jacksonville, Fla	5.03	6.88	+1.85	7.15	7.63	+0.48	7.27	7.28	+0.01	6.55	7.26	+ 0.71	3.18	0.09	—3.09	3.10	0.42	—2.68
Keokuk, Iowa	5.61	5.88	+0.27	3.02	1.32	—1.70	3.75	1.76	—1.99	3.30	6.95	+ 3.65	2.12	2.09	—0.03	2.20	1.20	—1.00
Key West, Fla	4.50	1.51	—2.99	5.35	6.08	+0.73	6.68	5.17	—1.51	4.71	19.77	+15.06	2.37	0.84	—1.53	1.91	0.97	—0.94
Kitty Hawk, N. C	7.15	3.98	—3.17	7.50	12.39	+4.89	6.62	7.73	+1.11	4.84	3.80	— 1.04	5.48	1.65	—3.83	5.49	2.89	—2.60
Knoxville, Tenn	4.34	3.59	—0.75	4.36	2.48	—1.88	3.14	2.53	—0.61	2.87	4.66	+ 1.79	4.41	4.18	—0.23	4.43	3.35	—1.08
La Crosse, Wis	4.46	11.03	+6.57	3.82	1.71	—2.11	4.65	4.92	—0.27	2.93	1.68	— 1.25	2.12	1.09	—1.03	1.21	1.06	—0.15
Leavenworth, Kans	4.89	3.58	—1.31	3.30	1.95	—1.35	3.22	1.57	—1.65	2.95	8.31	+ 5.36	2.61	2.02	—0.59	1.83	0.65	—1.18
Lewiston, Idaho	1.02	(¹)	—1.02	0.49	(¹)	—0.49	0.69	0.04	—0.65	1.96	1.84	— 0.12	1.60	1.86	+0.26	4.09	1.36	—2.73
Little Rock, Ark	3.27	4.83	+1.56	4.39	2.30	—2.09	2.57	3.67	+1.10	3.46	5.55	+ 2.09	5.86	3.13	—2.73	2.55	3.89	+1.34
Los Angeles, Cal	(¹)	(¹)	±0.00	(¹)	0.00	—(¹)	(¹)	0.00	—(¹)	0.49	1.43	+ 0.93	1.11	0.00	—1.11	4.03	2.56	—1.47
Louisville, Ky	4.40	4.74	+0.34	3.69	0.86	—2.83	2.74	0.32	—2.42	3.13	8.05	+ 4.92	3.53	6.05	+2.52	4.44	4.86	+0.42
Lynchburg, Va	3.36	0.19	—3.17	4.44	1.87	—2.57	3.47	5.57	+2.10	2.91	4.47	+ 1.56	3.51	1.14	—2.37	3.09	5.91	+2.82
Macon, Fort, N. C	7.84	6.71	—1.13	7.26	3.30	—3.96	5.84	12.69	+6.85	5.04	2.83	— 2.21	3.82	0.51	—3.31	5.12	1.88	—3.24
Marquette, Mich	3.37	4.04	+0.67	3.04	2.11	—0.93	5.42	3.24	—2.18	3.76	2.58	— 1.18	2.25	2.88	+0.63	1.56	2.01	+0.45
Memphis, Tenn	3.00	1.78	—1.22	3.48	1.85	—1.63	3.00	1.05	—1.95	3.43	8.56	+ 5.13	4.72	4.56	—0.16	3.49	5.86	+2.37
Milwaukee, Wis	3.05	7.13	+4.08	3.07	0.38	—2.69	3.72	2.82	—0.90	2.93	1.92	— 1.01	2.20	1.81	—0.39	1.78	1.96	+0.18
Mobile, Ala	6.75	3.31	—3.44	7.67	5.88	—1.79	5.64	0.96	—4.68	3.97	0.84	— 3.13	4.89	2.57	—2.32	4.84	3.11	—1.73
Montgomery, Ala	4.01	0.87	—3.14	3.52	2.08	—1.44	3.24	0.22	—3.02	2.71	2.00	— 0.71	3.81	1.70	—2.11	5.65	4.23	—1.42
Moorhead, Minn	3.44	4.57	+1.13	4.20	3.16	—1.04	2.99	2.51	—0.48	3.40	3.22	— 0.18	1.98	0.16	—1.82	0.78	1.47	+0.69
Mount Washington, N. H	9.70	11.14	+1.44	7.68	6.06	—1.62	9.17	6.90	—2.27	7.04	5.55	— 1.49	6.75	3.72	—3.03	5.69	2.66	—3.03
Nashville, Tenn	5.16	4.84	—0.32	3.38	4.39	+1.01	3.50	2.19	—1.31	2.87	5.24	+ 2.37	4.14	3.07	—1.07	3.75	4.93	+1.18
New Haven, Conn	4.78	5.67	+0.89	6.06	1.26	—4.80	4.32	2.43	—1.89	3.65	5.87	+ 2.22	4.41	1.56	—2.85	3.34	3.85	+0.51
New London, Conn	4.14	7.84	+3.70	5.23	2.76	—2.47	3.56	3.24	—0.32	4.04	7.33	+ 3.29	4.31	3.19	—1.12	3.19	3.62	+0.43
New Orleans, La	7.08	3.33	—3.75	6.14	4.12	—2.02	4.73	0.25	—4.48	3.41	3.43	+ 0.02	5.52	6.36	+0.84	4.96	3.47	—1.49
New York City	4.55	3.37	—1.18	4.82	2.29	—2.53	3.93	3.57	—0.36	3.02	4.27	+ 1.25	3.47	1.65	—1.82	2.93	3.40	+0.47
Norfolk, Va	5.52	3.87	—1.65	6.37	2.91	—3.46	5.11	6.63	+1.52	3.98	3.79	— 0.19	3.83	0.55	—3.28	3.91	2.40	—1.51
North Platte, Nebr	3.25	1.38	—1.87	2.03	4.51	+2.48	1.60	1.08	—0.52	1.16	3.47	+ 2.31	0.34	0.42	+0.08	0.78	1.48	+0.70

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[1] Precipitation inappreciable.

[2] No record.

Table of comparative precipitation, in inches and hundredths, at selected stations of the Signal Service, United States Army—Continued.

Stations.	July.			August.			September.			October.			November.			December.		
	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.	Average to include 1882.	Amount for 1883.	Excess or deficiency + or —.
Olympia, Wash	1.00	(1)	—1.00	0.97	0.01	—0.96	3.11	2.24	—0.87	5.91	3.73	—2.18	8.67	5.10	—3.57	11.00	5.14	—5.86
Omaha, Nebr	5.68	4.79	—0.89	3.24	3.39	+0.15	3.41	4.53	+1.12	2.72	5.03	+2.31	1.50	0.64	—0.86	1.04	0.73	—0.31
Oswego, N. Y	3.39	3.21	—0.18	2.54	2.16	—0.38	2.54	2.32	—0.22	3.62	1.94	—1.68	3.38	3.02	—0.36	3.71	4.08	+0.37
Pensacola, Fla	6.67	3.29	—3.38	13.86	8.75	—5.11	9.50	0.32	—9.18	5.69	1.91	—3.78	4.70	3.06	—1.64	5.32	5.30	—0.02
Philadelphia, Pa	4.63	1.78	—2.85	5.18	3.40	—1.78	3.68	4.24	+0.56	2.86	4.20	+1.34	3.43	1.34	—2.09	2.52	2.76	+0.24
Pike's Peak, Colo	4.90	5.37	+0.47	4.81	2.22	—2.59	2.11	1.76	—0.35	1.71	0.15	—1.56	2.31	0.07	—2.24	1.30	0.72	—0.58
Pittsburg, Pa	4.81	5.52	+0.71	3.16	3.40	+0.24	2.79	2.47	—0.32	2.60	2.43	—0.17	2.61	1.50	—1.11	2.90	3.40	+0.50
Port Huron, Mich	2.71	5.63	+2.92	3.19	0.59	—2.60	2.58	2.24	—0.34	3.03	3.47	+0.44	2.71	2.58	—0.13	2.48	1.30	—1.18
Portland, Me	3.33	5.05	+1.72	3.58	0.36	—3.22	3.20	2.68	—0.52	3.67	3.51	—0.16	3.87	3.66	—0.21	2.91	2.63	—0.28
Portland, Oreg	0.77	0.00	—0.77	0.87	0.19	—0.68	1.70	0.67	—1.03	5.04	3.91	—1.13	7.30	8.26	+0.96	8.44	6.34	—2.10
Prescott, Ariz	2.09	3.20	+1.11	3.53	3.26	—0.27	1.42	0.33	—1.09	0.51	0.43	—0.08	0.61	(1)	—0.61	1.38	4.54	+3.16
Red Bluff, Cal	0.02	0.00	—0.02	0.05	(1)	—0.05	0.33	1.04	+0.71	1.31	2.68	+1.37	2.80	0.74	—2.06	5.77	0.52	—5.25
Rio Grande City, Tex	1.87	1.40	—0.47	5.90	0.10	—5.80	2.05	4.88	+2.83	2.49	0.22	—2.27	0.86	1.70	+0.84	1.65	1.07	—0.58
Rochester, N. Y	3.52	(2)	(2)	3.05	(2)	(2)	2.36	(2)	(2)	3.52	1.36	—2.16	2.98	2.03	—0.95	3.13	2.33	—0.80
Roseburg, Oreg	0.62	0.01	—0.61	0.51	0.03	—0.48	1.06	0.62	—0.44	3.21	2.34	—0.87	4.03	2.20	—1.83	5.92	5.73	—0.19
Sacramento, Cal	(1)	0.00	—(1)	(1)	0.00	—(1)	0.19	0.90	+0.71	0.89	0.97	+0.08	1.46	0.61	—0.85	3.59	0.44	—3.15
Saint Louis, Mo	4.36	4.31	—0.05	2.50	3.34	+0.84	2.76	0.01	—2.75	2.54	6.60	+4.06	2.71	3.71	+1.00	2.22	1.78	—0.44
Saint Michael's, Fort, Alaska	1.21	3.13	+1.92	2.39	3.80	+1.41	2.43	4.48	+2.05	1.27	1.66	+0.39	0.81	1.06	+0.25	0.71	0.70	—0.01
Saint Paul, Minn	3.13	4.33	+1.20	4.05	1.22	—2.83	3.35	2.23	—1.12	2.31	1.10	—1.21	1.45	1.01	—0.44	1.26	1.59	+0.33
Saint Vincent, Minn	2.14	2.16	+0.02	1.19	5.16	+3.97	1.90	1.57	—0.33	2.86	3.90	+1.04	0.52	0.26	—0.26	0.57	0.26	—0.31
Salt Lake City, Utah	0.68	0.10	—0.58	0.88	0.62	—0.26	0.81	0.13	—0.68	1.92	2.24	+0.32	1.54	1.78	+0.24	1.44	1.20	—0.24
San Diego, Cal	0.02	0.00	—0.02	0.25	0.00	—0.25	0.05	0.00	—0.05	0.35	2.01	+1.66	0.74	0.20	—0.54	2.14	1.82	—0.32
Sandusky, Ohio	4.06	(2)	(2)	4.19	4.74	+0.55	3.46	4.07	+0.61	3.27	4.88	+1.61	3.64	3.92	+0.28	3.03	2.61	—0.42
Sandy Hook, N. J	4.39	2.30	—2.09	4.80	3.44	—1.36	5.23	4.63	—0.60	3.13	5.20	+2.07	4.41	1.54	—2.87	3.83	2.57	—1.26
San Francisco, Cal	0.01	0.00	—0.01	0.01	0.00	—0.01	0.12	0.42	+0.30	1.10	1.48	+0.38	2.79	1.60	—1.19	5.03	0.92	—4.11
Savannah, Ga	4.98	4.56	—0.42	7.48	9.28	+1.80	5.52	2.55	—2.97	4.00	1.41	—2.59	2.77	0.58	—2.19	3.55	1.99	—1.56
Shaw, Fort, Mont	1.55	0.15	—1.40	1.01	0.97	—0.04	1.93	0.79	—1.14	0.86	2.22	+1.36	0.59	0.83	+0.24	0.56	0.54	—0.02
Shreveport, La	4.63	0.22	—4.41	2.13	0.72	—1.41	4.67	1.29	—3.38	4.17	0.97	—3.20	4.56	8.66	+4.10	4.77	3.07	—1.70
Sill, Fort, Ind. Ter	3.89	2.30	—1.59	2.50	(2)	(2)	3.01	1.44	—1.57	2.17	(2)	(2)	1.98	(2)	(2)	2.12	(2)	(2)
Sitka, Alaska	5.54	6.38	+0.84	4.16	9.16	+5.00	10.89	8.13	— 2.76	7.34	13.31	+5.97	12.48	10.63	—1.85	12.04	14.54	+2.50
Smithville, N. C	6.70	2.20	—4.50	5.95	2.58	—3.37	6.62	8.69	+ 2.07	6.56	1.19	—5.37	3.50	0.35	—3.15	3.82	1.57	—2.25
Spokane Falls, Wash	1.56	0.00	—1.56	0.30	0.15	—0.15	1.68	0.08	— 1.60	3.61	1.48	—2.13	2.34	1.98	—0.36	2.99	0.21	—2.78
Springfield, Ill	2.15	3.77	+1.62	3.20	0.95	—2.25	2.91	1.06	— 1.85	4.27	6.08	+1.81	4.06	3.48	—0.58	2.98	3.17	+0.19
Stockton, Fort, Tex	2.23	2.64	+0.41	3.08	0.85	—2.23	4.24	14.68	+10.44	1.03	0.51	—0.52	0.68	1.29	+0.61	0.58	0.86	+0.28
Thomas, Camp, Ariz	1.98	1.85	—0.13	2.49	2.52	+0.03	0.79	(1)	— 0.79	0.19	0.52	+0.33	0.87	0.00	—0.87	0.71	1.07	+0.36
Toledo, Ohio	3.73	4.26	+0.53	3.13	1.51	—1.62	2.55	2.78	+ 0.23	2.72	3.68	+0.96	2.97	3.03	+0.06	2.57	1.90	—0.67

Unalashka, Alaska	2.18	1.70	−0.48	2.00	4.74	+2.74	7.74	9.75	+ 2.01	12.06	6.15	−5.91	7.86	5.05	−2.81	8.19	13.64	+5.45
Verde, Fort, Ariz	1.94	3.35	+1.41	3.90	1.14	−2.76	1.54	0.00	− 1.54	0.54	0.45	−0.09	0.72	0.00	−0.72	1.20	4.30	+3.10
Vicksburg, Miss	4.04	3.61	−0.43	3.69	1.86	−1.83	4.33	0.84	− 3.49	3.62	4.84	+1.22	5.59	11.53	+5.94	4.94	9.42	+4.48
Washington City	4.08	4.78	+0.70	5.11	3.30	−1.81	4.43	4.33	− 0.10	3.03	2.63	−0.40	2.97	1.19	−1.78	2.92	2.89	−0.03
Wilmington, N. C	6.36	4.71	−1.65	8.16	5.19	−2.97	6.92	16.53	+ 9.61	4.25	1.09	−3.16	3.02	0.42	−2.60	3.85	1.22	−2.63
Yankton, Dak	4.18	3.33	−0.85	2.57	2.85	+0.28	2.84	3.98	+ 1.14	1.77	1.98	+0.21	0.41	0.08	−0.33	0.74	0.91	−0.17
Yuma, Ariz	0.21	0.31	+0.10	0.25	0.22	−0.03	0.08	0.13	+ 0.05	0.04	0.05	+0.01	0.08	0.00	−0.08	0.31	(²)	(²)

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[1] Precipitation inappreciable.

[2] No record.

APPENDIX 51.

Table showing the average precipitation at stations of the Signal Service, United States Army, for each month of the year, computed from the commencement of observations at each, to and including December, 1883.

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
		Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Albany, N. Y	Dec. 22, 1873	2.72	2.74	2.84	2.87	2.98	4.81	4.48	3.16	3.65	3.12	2.49	2.71
Alexander, Fort, Alaska	Aug. 1, 1881	5.72	1.83	3.46	0.98	2.11	1.71	2.86	3.38	4.54	2.74	4.96	1.77
Alpena, Mich	Sept. 10, 1872	2.04	2.10	2.07	1.92	4.00	4.16	3.65	3.52	4.64	4.76	2.94	2.06
Apache, Fort, Ariz	Oct. 9, 1877	1.41	1.72	1.28	0.65	0.43	0.76	5.13	4.89	1.82	1.85	1.00	1.71
Assinaboine, Fort, Mont	Oct. 6, 1879	1.65	0.55	0.85	1.10	0.97	0.92	1.69	1.83	1.21	0.70	1.28	0.82
Atlanta, Ga	Sept. 25, 1878	7.54	6.02	6.65	5.82	2.99	2.95	3.43	4.21	3.26	2.76	4.98	6 01
Atlantic City, N. J	Dec. 10, 1873	3.66	3.06	3.96	3.59	2.35	3.32	2.99	5.23	3.82	2.80	3.38	4.02
Augusta, Ga	Nov. 2, 1870	4.49	3.98	5.65	4.59	3.13	4.14	4.52	4.87	3.97	2.23	4.29	4.23
Baltimore, Md	Jan. 1, 1871	3.05	3.03	3.98	3.23	2.82	3.94	4.06	4.46	4.34	2.97	3.04	3.11
Barnegat City, N. J	Dec. 10, 1873	4.96	3.97	5.33	4.09	2.82	3.92	4.07	4.85	5.45	3.58	4.38	4.31
Behring's Island, Behring Sea	May 22, 1882	0.61	2.98	0.61	1.03	0.38	2.88	1.77	2.25	2.50	2.90	2.20	1.96
Bennett, Fort, Dak	Dec. 22, 1879	1.07	0.80	1.28	2.26	2.60	3.71	1.84	1.48	1.36	0.76	0.32	0.44
Benton, Fort, Mont	Oct. 11, 1879	0.84	0.50	0.77	0.87	3.05	1.81	1.66	1.07	1.06	0.90	0.85	0.62
Bismarck, Dak	Sept. 15, 1874	0.57	0.66	1.21	2.94	3.31	3.64	2.21	2.71	1.34	1.33	0.71	0.72
Block Island, R. I	Sept. 1, 1880	4.89	6.19	4.31	3.41	4.64	5.78	2.92	2.51	4.10	5.29	3.98	4.12
Boisé City, Idaho	July 1, 1877	2.54	1.83	1.27	1.26	1.03	0.53	0.14	0.09	0.37	1.65	0.82	1.88
Boston, Mass	Nov. 1, 1870	4.03	3.52	4.97	4.01	3.48	3.63	3.90	4.32	3.28	4.25	5.20	3.57
Brownsville, Tex	Aug. 25, 1875	2.10	1.90	1.36	0.66	2.66	1.74	2.63	5.37	5.47	3.31	2.42	2.31
Buffalo, N. Y	Nov. 1, 1870	2.61	2.42	2.99	2.42	2.92	3.18	3.56	2.79	3.13	3.98	3.55	3.42
Buford, Fort, Dak	Oct. 23, 1878	0.87	0.57	0.60	1.25	2.56	3.02	2.61	1.15	0.94	1.05	0.37	1.09
Cairo, Ill	June 1, 1871	4.40	4.77	4.19	4.37	4.25	4.65	4.04	2.79	2.38	3.42	4.15	3.33
Cape Henry, Va	Dec. 15, 1873	4.77	3.61	6.05	5.75	3.43	3.88	6.02	5.39	5.71	4.25	4.47	4.48
Cape May, N. J	May 24, 1871	4.22	3.60	5.14	3.34	2.62	3.81	3.30	5.77	4.46	3.53	3.73	4.15
Cape Mendocino, Cal	July 27, 1882	2.91	2.86	1.68	2.90	1.67	0.02	0.00	0.60	0.80	2.36	1.89	2.25
Cedar Keys, Fla	Nov. 7, 1879	5.31	2.98	3.58	2.82	2.72	6.02	9.10	9.80	5.99	4.16	2.81	2.73
Charleston, S. C	Jan. 5, 1871	3.77	3.65	4.47	5.03	4.70	5.06	7.18	7.46	6.44	5.00	3.51	3.64
Charlotte, N. C	Oct. 6, 1878	5.79	4.30	4.96	4.73	2.40	3.16	5.84	5.19	3.16	3.52	3.94	5.17
Chattanooga, Tenn	Jan. 8, 1879	3.84	5.07	6.36	5.82	3.82	3.30	3.89	4.60	4.09	3.56	5.22	5.84
Cheyenne, Wyo	Nov. 1, 1870	0.24	0.13	0.48	1.04	2.18	1.42	1.79	1.42	0.86	0.77	0.27	0.18
Chicago, Ill	Nov. 1, 1870	2.04	2.28	2.79	3.65	4.04	4.45	3.96	2.66	2.82	3.86	2.96	2.07
Chincoteague, Va	Mar. 16, 1880	4.53	3.69	3.33	2.61	2.19	2.19	3.54	5.16	3.05	3.62	3.08	3.66
Cincinnati, Ohio	Nov. 1, 1870	3.54	3.71	3.96	3.24	3.50	4.94	4.29	4.17	2.17	3.11	3.48	3.97
Cleveland, Ohio	Nov. 1, 1870	2.50	2.62	3.16	2.49	3.17	4.83	4.21	3.41	3.91	3.14	2.63	2.83
Columbus, Ohio	July 1, 1878	3.26	3.94	3.63	3.15	4.65	4.05	3.97	4.06	2.81	3.83	3.73	3.97
Concho, Fort, Tex	Oct. 10, 1875	1.09	1.87	1.82	1.45	3.23	2.49	3.90	4.12	4.47	2.64	1.22	1.17
Custer, Fort, Mont	Dec. 5, 1878	0.94	0.30	0.41	1.27	3.71	2.17	1.31	0.92	0.61	1.06	0.53	1.22

Davenport, Iowa	May 24, 1871	1.75	1.62	2.28	3.26	4.5[illegible]	5.14	3.89	3.58	3.18	2.80	2.16	1.53
Davis, Fort, Tex	Dec. 24, 1877	0.65	0.21	0.26	0.43	1.6[illegible]	2.38	4.30	5.36	1.85	2.01	0.49	0.40
Dayton, Wash. T	July 1, 1879	4.11	3.64	2.04	2.26	2.02	0.86	0.79	0.49	0.67	2.64	2.55	4.95
Deadwood, Dak	Dec. 25, 1877	0.94	0.94	1.64	5.51	6.06	4.42	2.30	1.73	0.56	1.56	1.00	1.51
Delaware Breakwater, Del	Jan. 28, 1880	4.08	2.50	3.41	1.76	1.47	2.62	2.82	3.56	2.64	3.07	2.24	2.40
Denver, Colo	Nov. 19, 1871	0.69	0.43	0.86	1.71	3.05	1.60	1.89	1.54	0.96	0.79	0.74	0.71
Des Moines, Iowa	Aug. 1, 1878	1.06	1.69	1.40	2.58	6.54	9.30	3.87	3.69	2.81	4.62	2.82	1.47
Detroit, Mich	Nov. 1, 1870	2.14	2.41	2.87	2.37	3.72	3.95	4.14	2.98	2.68	2.87	2.55	2.78
Dodge City, Kans	Sept. 15, 1874	0.28	0.58	0.70	1.25	4.38	2.55	3.06	3.30	1.16	1.33	0.64	0.68
Dubuque, Iowa	July 10, 1873	1.48	1.53	2.80	2.92	3.93	5.72	5.30	3.43	4.96	3.12	2.41	1.59
Duluth, Minn	Nov. 1, 1870	1.03	1.08	1.68	2.05	3.94	5.69	4.15	3.30	4.57	3.08	1.81	1.89
Eastport, Me	April 1, 1873	3.15	3.73	5.45	3.39	4.31	4.28	4.82	3.16	3.80	4.80	4.61	3.41
Elliott, Fort, Tex	Nov. 29, 1879	0.20	0.87	0.24	0.72	5.45	1.95	3.48	2.58	2.97	2.68	0.38	0.39
El Paso, Tex	Nov. 5, 1877	0.78	0.45	0.59	0.10	0.39	0.11	3.76	2.30	0.98	0.99	0.54	0.59
Erie, Pa	May 25, 1873	3.83	3.12	3.12	2.57	3.57	4.09	3.30	3.10	4.35	4.84	4.42	3.40
Escanaba, Mich	May 24, 1871	1.84	1.29	1.76	1.78	4.03	4.97	3.48	4.06	4.06	3.68	2.66	1.52
Fort Smith, Ark	June 1, 1882	2.71	5.62	1.20	4.38	5.65	3.11	3.00	1.33	4.08	6.16	3.48	2.42
Galveston, Tex	Apr. 19, 1871	3.79	3.09	2.99	3.07	4.15	4.06	3.79	5.62	6.19	5.62	5.27	4.61
Grand Haven, Mich	May 24, 1871	2.26	2.09	2.51	2.62	3.60	4.60	3.36	2.91	3.90	3.37	3.34	2.24
Grant, Fort, Ariz	Nov. 1, 1875	0.72	0.74	1.01	0.21	0.37	0.74	4.18	3.71	1.33	0.75	0.54	1.26
Hatteras, N.C	Dec. 1, 1880	6.87	5.26	3.06	6.03	4.03	4.98	6.21	6.27	7.98	7.23	5.60	6.32
Helena, Mont	Oct 15, 1879	1.50	0.54	0.35	1.31	1.23	1.72	0.87	1.10	2.05	1.46	0.74	1.63
Huron, Dak	July 1, 1881	0.16	0.36	0.61	3.16	4.48	5.10	4.89	3.17	1.88	2.48	0.37	0.30
Indianapolis, Ind	Feb. 10, 1871	2.94	3.70	4.22	3.49	4.26	5.56	5.78	3.31	2.59	3.47	3.89	3.33
Indianola, Tex	May 1, 1872	2.07	2.00	2.67	1.55	2.98	2.34	2.58	4.37	6.52	3.61	3.12	3.31
Jacksonville, Fla	Sept. 11, 1871	3.28	3.45	3.18	3.55	3.80	5.39	5.18	7.19	7.27	6.60	2.95	2.39
Keokuk, Iowa	July 16, 1871	1.66	1.74	2.29	3.25	4.27	5.63	4.85	2.89	3.60	3.58	2.12	2.12
Key West, Fla	Nov. 1, 1870	2.32	1.84	0.66	1.42	4.37	4.06	4.27	5.41	6.56	5.87	2.26	1.84
Kitty Hawk, N.C	Jan. 15, 1875	6.08	3.69	5.99	5.86	3.05	4.75	6.79	3.04	6.74	4.73	5.65	5.20
Knoxville, Tenn	Jan. 1, 1871	5.89	4.90	5.46	5.68	3.33	4.39	4.28	4.22	3.09	3.01	4.39	4.35
La Crosse, Wis	Oct. 15, 1872	1.23	1.16	1.36	1.95	3.58	4.89	5.06	3.63	4.67	2.82	2.03	1.20
Leavenworth, Kans	May 21, 1871	1.35	1.60	2.39	3.56	5.07	5.89	4.79	3.20	3.10	3.36	2.57	1.74
Lewiston, Idaho	July 1, 1879	2.45	1.53	1.16	1.28	1.12	0.94	0.76	0.36	0.52	1.93	1.66	3.40
Little Rock, Ark	July 1, 1879	5.08	3.38	5.12	5.28	7.01	3.56	3.58	3.97	2.79	3.87	5.31	2.82
Los Angeles, Cal	July 1, 1877	2.05	2.78	1.95	1.73	0.60	0.02	(1)	(1)	(1)	0.62	0.95	3.82
Louisville, Ky	Sept. 11, 1871	4.25	4.41	4.42	4.71	3.77	4.56	4.43	3.45	2.55	3.51	3.73	4.47
Lynchburg, Va	May 24, 1871	3.68	2.97	3.71	3.66	2.89	3.41	3.12	4.25	3.63	3.03	3.82	3.30
Mackinaw City, Mich	Aug. 20, 1882	5.17	2.99	1.51	0.69	4.49	3.58	4.35	1.95	2.29	2.89	3.98	3.94
Macon, Fort, N.C	May 23, 1878	6.07	3.36	6.74	4.84	3.51	6.71	7.46	5.94	3.12	4.30	2.72	4.04
Maginnis, Fort, Mont	July 14, 1882	1.30	0.59	1.46	0.89	1.78	0.94	0.28	0.49	0.70	2.42	0.76	0.71
Marquette, Mich	May 1, 1871	1.17	1.84	1.39	1.51	3.02	4.36	3.42	2.96	5.26	3.67	2.30	1.59
Memphis, Tenn	Feb. 28, 1871	5.92	5.48	6.25	6.48	4.74	5.17	2.87	3.29	2.85	3.83	4.70	3.68
Milwaukee, Wis	Nov. 1, 1870	1.98	1.92	2.83	3.00	3.80	4.05	3.36	2.86	3.15	2.85	2.18	1.79
Mobile, Ala	Nov. 7, 1870	4.75	4.55	7.59	6.06	4.60	5.51	6.49	7.53	5.28	3.73	4.70	4.71
Montgomery, Ala	Nov. 9, 1870	4.56	5.57	6.53	6.77	3.94	4.28	3.73	3.39	2.97	2.65	3.63	5.53
Moorhead, Minn	Jan. 1, 1881	1.04	1.22	1.28	1.37	3.90	4.45	2.82	3.85	2.83	3.34	1.37	1.01
Mount Washington, N.H	Dec. 1, 1870	4.28	3.87	6.97	6.11	6.62	9.59	9.82	7.54	9.00	6.93	6.52	5.46
Nashville, Tenn	Nov. 1, 1870	5.01	5.37	5.20	5.82	3.52	4.02	5.14	3.47	3.41	3.06	4.07	3.84
New Haven, Conn	Dec. 10, 1872	4.20	4.22	5.29	4.32	3.71	3.19	4.86	5.62	4.15	3.85	4.15	3.38
New London, Conn	Jan. 10, 1871	3.97	3.48	5.02	3.90	3.29	3.36	4.42	5.04	3.54	4.30	4.22	3.22

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[1] Inappreciable.

Table showing the average precipitation at stations of the Signal Service, United States Army, &c.—Continued.

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.
		Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
New Orleans, La	Nov. 1, 1870	5.52	4.36	5.75	6.34	5.61	6.04	6.79	5.99	4.39	3.41	5.58	4.85
New York City	Nov. 1, 1870	3.50	3.23	4.07	3.25	2.74	3.32	4.46	4.62	3.90	3.12	3.34	2.97
Norfolk, Va	Jan. 1, 1871	3.89	3.85	4.35	4.29	3.54	4.15	5.39	6.11	5.23	3.96	3.58	3.80
North Platte, Nebr	Sept. 18, 1874	0.65	0.41	0.50	1.80	3.17	3.98	3.04	2.30	1.55	1.39	0.35	0.80
Olympia, Wash. T	July 1, 1877	9.36	10.67	6.20	4.34	2.76	0.88	0.86	0.83	2.98	6.60	8.16	10.17
Omaha, Nebr	Nov. 1, 1870	0.55	0.81	1.32	3.31	5.29	6.78	5.61	3.25	3.50	2.89	1.44	1.02
Oswego, N. Y	Nov. 1, 1870	2.91	2.55	3.19	2.09	2.81	3.48	3.38	2.51	2.52	3.49	3.35	3.74
Palestine, Tex	Dec. 3, 1881	3.79	3.84	3.86	3.48	5.20	3.58	3.90	2.81	2.12	7.22	7.86	2.06
Pensacola, Fla	Oct. 27, 1879	5.48	4.74	4.03	4.83	4.56	5.08	5.82	12.58	7.20	4.74	4.38	5.82
Philadelphia, Pa	Jan. 1, 1871	3.25	3.01	3.27	3.16	2.78	3.63	4.41	5.05	3.78	2.97	3.27	2.54
Pike's Peak, Colo	Nov. 1, 1873	1.76	1.33	2.14	3.61	4.12	1.92	4.94	4.55	2.08	1.54	2.10	1.24
Pittsburg, Pa	Nov. 1, 1870	2.87	2.38	3.05	2.59	2.69	3.71	4.87	3.18	2.77	2.59	2.53	2.94
Poplar River, Mont	May 1, 1882	0.46	0.43	0.74	0.62	2.18	0.58	0.38	0.90	0.90	1.50	0.28	0.30
Port Huron, Mich	July 25, 1874	1.96	2.32	4.08	2.21	3.25	4.00	3.04	2.93	2.54	3.07	2.70	2.36
Portland, Me	Jan. 15, 1871	3.22	2.91	3.13	2.81	3.00	3.64	3.47	3.33	3.16	3.66	3.85	2.89
Portland, Oreg	Nov. 1, 1871	7.34	8.11	7.27	3.48	2.44	1.82	0.71	0.81	1.62	4.95	7.37	8.27
Prescott, Ariz	Nov. 19, 1873	1.19	0.81	0.90	0.82	0.46	0.15	2.22	3.49	1.28	0.50	0.54	1.64
Provincetown, Mass	Feb. 15, 1882	4.76	5.00	3.36	3.90	4.70	2.06	2.88	0.74	4.13	5.97	3.64	4.08
Red Bluff, Cal	July 1, 1877	6.50	4.85	2.34	2.88	1.36	0.16	0.01	0.04	0.43	1.51	2.50	5.02
Rio Grande City, Tex	May 28, 1875	1.14	1.24	1.25	0.87	2.41	1.54	1.80	5.07	2.45	2.11	1.00	1.56
Rochester, N. Y	Nov. 1, 1870	3.31	2.68	3.41	2.64	3.31	3.16	3.52	3.05	2.36	3.36	2.91	3.07
Roseburg, Oreg	July 15, 1877	6.93	4.93	4.05	2.92	1.92	0.86	0.58	0.44	1.00	3.16	3.77	5.89
Sacramento, Cal	July 1, 1877	4.06	3.72	3.09	3.70	0.90	0.12	(1)	(1)	0.29	0.90	1.34	3.14
Saint Louis, Mo	Nov. 1, 1870	2.19	3.10	3.04	3.85	3.86	4.82	4.36	2.56	2.55	2.78	2.72	2.18
Saint Michael's, Fort, Alaska	June 28, 1874	1.01	0.15	0.30	0.54	1.01	1.16	1.40	2.53	2.64	1.30	0.84	0.71
Saint Paul, Minn	Nov. 1, 1870	1.07	1.07	1.64	2.09	3.72	5.13	3.22	3.83	3.26	2.21	1.42	1.28
Saint Vincent, Minn	Sept. 5, 1880	0.40	0.54	0.62	0.81	3.02	2.62	2.14	2.51	1.82	3.12	0.46	0.49
Salt Lake City, Utah	Mar. 19, 1874	1.40	1.28	1.84	2.40	2.18	0.71	0.62	0.85	0.74	1.95	1.57	1.41
San Diego, Cal	Nov. 1, 1871	1.85	2.07	0.97	0.68	0.26	0.05	0.02	0.23	0.05	0.49	0.70	2.12
Sandusky, Ohio	Aug. 2, 1877	2.19	3.18	2.90	2.79	3.34	5.06	4.06	4.27	3.54	3.50	3.68	2.97
Sandy Hook, N. J	Dec. 10, 1873	4.05	3.39	5.49	4.69	3.97	4.35	4.18	4.66	5.17	3.33	4.12	3.72
Sanford, Fla	Sept. 1, 1882	1.50	0.00	1.50	3.44	2.41	8.57	3.14	6.74	3.48	8.88	0.85	0.15
San Francisco, Cal	Mar. 8, 1871	5.10	3.95	2.88	1.80	0.71	0.16	0.01	0.01	0.15	1.13	2.70	4.72
Savannah, Ga	Jan. 1, 1871	3.41	3.11	4.06	4.36	3.01	6.73	4.95	7.61	5.29	3.80	2.60	3.48
Shaw, Fort, Mont	Apr. 1, 1880	1.27	0.84	0.61	0.74	1.90	2.55	1.20	1.00	1.65	1.20	0.65	0.56
Shreveport, La	Sept. 3, 1871	4.77	5.18	5.04	5.96	4.46	3.14	4.26	2.01	4.39	3.92	4.87	4.64
Sill, Fort, Ind. T	June 23, 1875	1.18	1.87	1.35	2.44	3.08	5.02	3.66	2.50	2.78	2.17	1.93	2.12
Sitka, Alaska	Mar. 30, 1881	9.44	11.64	9.76	4.40	3.2[illegible]	3.13	5.82	5.82	9.97	9.33	11.87	12.87
Smithville, N. C	Oct. 15, 1875	4.07	3.10	4.33	3.62	2.[illegible]	3.51	6.14	5.52	6.88	5.89	3.15	3.57

Spokane Falls, Wash	Feb. 5, 1881	3.34	3.02	0.95	1.99	1.38	1.00	1.04	0.25	1.14	2.90	2.22	2.06
Springfield, Ill	July 1, 1879	2.00	6.05	3.28	3.36	6.46	7.14	2.47	2.75	2.54	4.63	3.95	3.02
Stockton, Fort, Tex	Feb. 26, 1876	0.30	0.82	0.65	0.35	1.35	1.95	2.29	2.76	5.73	0.96	0.77	0.62
Thomas, Camp, Ariz	Sept. 22, 1877	0.53	0.89	1.08	0.18	0.33	0.45	1.94	2.50	0.60	0.28	0.28	0.80
Toledo, Ohio	Nov. 1, 1870	2.05	1.94	2.27	2.32	3.09	3.78	3.77	3.01	2.56	2.79	2.97	2.53
Unalashka, Alaska	Aug. 18, 1878	9.77	3.88	5.68	3.02	5.92	2.28	2.06	2.91	3.24	10.58	7.30	9.28
Verde, Fort, Ariz	Nov. 9, 1874	0.77	0.61	1.04	0.60	0.32	0.32	2.12	3.55	1.35	0.53	0.63	1.59
Vicksburg, Miss	Sept. 10, 1871	5.27	5.21	6.83	7.12	5.18	3.85	4.00	3.58	4.06	3.71	6.05	5.28
Washington City	Nov. 1, 1870	3.16	2.85	4.04	3.07	2.98	4.23	4.08	4.97	4.42	3.00	2.84	2.92
West Las Animas, Colo	Oct. 1, 1881	0.14	0.27	0.12	0.96	3.28	2.56	1.18	1.27	0.63	0.47	0.11	0.88
Wilmington, N. C	Jan. 1, 1871	3.85	3.42	4.88	3.48	4.16	5.93	6.23	7.93	7.66	4.00	2.82	3.65
Yankton, Dak	Apr. 1, 1873	0.61	0.79	1.23	2.86	4.87	5.42	4.10	2.59	2.95	1.79	0.38	0.75
Yuma, Ariz	Nov. 18, 1873	0.48	0.52	0.08	0.09	0.01	0.01	0.22	0.25	0.09	0.04	0.03	0.31

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[1] Inappreciable.

APPENDIX 52.

Table showing the mean monthly and mean annual precipitation at selected stations of the Signal Service, United States Army, computed from January, 1874, to December, 1883, inclusive.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Albany, N. Y	2.72	2.74	2.84	2.87	2.98	4.81	4.48	3.16	3.65	3.12	2.49	2.71	38.05
Alpena, Mich	2.10	2.26	2.18	1.80	4.11	4.28	3.69	3.67	4.59	5.00	3.09	2.20	38.92
Atlantic City, N. J	3.66	3.06	3.96	3.59	2.35	3.32	2.99	5.23	3.82	2.80	3.38	4.02	42.18
Augusta, Ga	4.65	3.64	5.58	5.07	2.31	4.28	4.36	4.79	4.14	2.83	3.95	4.06	49.15
Baltimore, Md	3.29	3.18	4.20	3.44	2.69	4.33	4.21	4.05	4.54	2.52	2.91	3.49	42.85
Barnegat City, N. J	4.96	3.97	5.33	4.09	2.82	3.92	4.07	4.85	5.45	3.58	4.38	4.31	51.74
Boston, Mass	4.18	3.74	5.22	4.32	3.25	3.63	3.97	3.62	3.22	3.92	5.02	3.36	47.46
Buffalo, N. Y	2.98	2.60	2.88	2.34	3.14	3.20	3 42	2.50	3.28	3.94	3.50	3.58	37.34
Cairo, Ill	4.64	4.47	4.50	4.24	4.10	4.96	4.14	3.13	2.20	3.48	4.74	3.32	47.86
Cape Henry, Va	4.77	3.61	6.05	5.75	3.43	3.88	6.02	5.39	5.71	4.25	4.47	4.48	57.82
Cape May, N. J	4.09	3.26	5.21	3.52	2.67	4.18	3.88	6.21	4.52	3.28	3.63	4.59	48.52
Charleston, S. C	3.98	3.54	4.05	5.60	4.20	5.51	3.12	6.12	6.12	5.48	3.80	3.63	59.60
Cheyenne, Wyo	.27	.13	.54	1.00	2.12	1.26	1.71	1.40	.91	.88	.25	.21	10.67
Chicago, Ill	1.91	2.69	2.88	3.45	3.82	4.74	4.19	2.84	2.59	4.32	3.22	1 88	38.53
Cincinnati, Ohio	4.16	4.06	4.45	3.24	3.70	5.52	4.20	4.13	2.31	3.25	3.73	3.95	46.70
Cleveland, Ohio	2.78	2.91	3.24	2.30	3.21	4.44	4.06	2.97	4.42	3.26	2.86	2.90	39.34
Davenport, Iowa	1.73	1.86	2.41	3.01	4.83	5.72	4.20	3.23	3.47	3.12	2.22	1.59	36.70
Denver, Colo	.76	.47	.84	1.60	3.21	1.49	1.80	1.54	.91	.80	.80	.78	14.99
Detroit, Mich	2.22	2.77	3.15	2.20	3.69	3.94	4.59	3.43	2.62	3.24	2.95	2.63	37.43
Dubuque, Iowa	1.48	1.53	2.30	2.92	3.93	5.72	5.70	3.18	5.31	3.22	2.58	1.54	39.41
Duluth, Minn	.94	1.07	1.75	2.06	4.13	5.65	3.49	3.55	4.60	3.21	1.86	1.62	34.02
Eastport, Me	3.15	3.73	5.45	3.29	4.50	4.39	4.86	3.23	3.74	4.55	4.54	3.61	49.02
Erie, Pa	3.32	3.12	3.12	2.57	3.57	4.28	3.12	2.93	4.42	4.18	4.51	3.25	42.89
Escanaba, Mich	1.45	1.39	1.80	1.95	3.82	5.37	3.16	4.62	4.21	4.09	2.88	1.66	36.40
Galveston, Tex	3.74	3.43	3.04	3.16	4.25	2.89	3.94	5.81	6.70	5.12	4.60	4.97	51.65
Indianapolis, Ind	2.96	4.01	4.57	3.43	4.66	6.27	4.79	3.53	2.82	3.72	4.37	3.29	48.42
Indianola, Tex	2.10	2.08	2.70	1.67	2.77	2.35	2.60	4.46	6.82	3.96	3.23	2.97	37.71
Jacksonville, Fla	3.20	3.81	2.49	3.96	3.88	4.93	5.15	7.37	7.13	7.02	3.01	2.68	54.62
Keokuk, Iowa	1.64	2.00	2.41	2.95	4.42	6.05	4.85	3.82	4.03	3.62	2.25	1.70	39.25
Key West, Fla	2.42	1.61	.74	1.64	4.76	4.40	3.79	5.84	6.96	6.99	2.35	1.45	42.94
Knoxville, Tenn	6.75	4.41	5.65	6.46	3.10	4.08	4.56	4.19	2.91	3.07	4.57	4.23	53.98
La Crosse, Wis	1.29	1.25	2.00	2.03	3.67	4.87	5.32	3.83	4.75	2.91	2.15	1.31	35.96
Leavenworth, Kans	1.30	1.72	2.50	3.40	4.74	6.26	4.51	2.78	3.12	3.59	2.85	1.53	38.81
Louisville, Ky	4.88	4.80	4.85	4.44	3.49	4.47	4.60	3.59	2.48	3.68	4.32	4.58	49.13
Lynchburg, Va	3.78	2.78	3.78	3.73	2.21	3.58	3.10	3.98	4.06	3.27	3.30	3.74	41.89

Marquette, Mich	1.82	1.56	1.53	1.61	2.97	4.66	3.09	3.04	5.14	4.12	2.62	1.38	33.54
Memphis, Tenn	6.31	5.25	6.28	6.74	4.66	5.13	2.98	3.50	2.66	3.65	5.34	3.94	56.44
Milwaukee, Wis	2.10	2.28	3.17	3.06	3.80	4.30	3.73	2.76	2.88	3.10	2.34	1.80	35.30
Montgomery, Ala	4.52	5.13	6.73	6.89	3.31	3.60	3.68	3.47	2.96	3.06	3.33	5.96	52.64
Mount Washington, N. H	4.68	4.10	7.69	7.05	7.08	9.35	10.07	7.83	9.00	6.92	7.18	6.28	87.12
Nashville, Tenn	5.70	5.51	5.53	6.20	3.30	3.99	5.45	3.86	3.69	3.25	4.41	4.17	55.06
New Haven, Conn	3.85	4.30	5.42	4.26	3.46	3.30	5.19	5.19	4.35	3.62	4.10	3.81	50.85
New London, Conn	4.13	3.92	5.31	4.28	3.14	3.58	4.94	5.20	3.53	3.81	3.84	3.22	48.90
New Orleans, La	5.49	4.84	5.60	7.34	4.61	5.78	7.22	5.86	4.52	3.02	5.20	5.54	65.01
New York City	3.69	3.50	4.21	3.33	2.46	3.18	4.08	4.08	4.27	2.75	3.12	3.36	42.02
Norfolk, Va	4.08	3.00	4.19	4.74	3.40	4.02	5.60	6.07	5.43	3.38	3.35	3.62	50.87
Omaha, Nebr	.58	.83	1.50	3.20	5.50	7.57	5.24	3.68	3.77	2.98	1.29	.94	37.08
Oswego, N. Y	3.28	3.00	3.05	1.98	3.11	3.67	3.55	2.35	2.70	3.15	3.70	4.29	37.83
Philadelphia, Pa	3.21	3.08	3.35	3.18	2.44	3.84	3.09	4.07	4.05	2.46	2.98	2.74	38.09
Pike's Peak, Colo	1.76	1.33	2.14	3.61	4.12	1.92	4.94	4.55	2.08	1.55	2.28	1.31	31.60
Pittsburg, Pa	3.01	2.60	3.33	2.77	2.80	3.83	4.92	2.82	3.14	2.07	2.84	3.08	37.20
Portland, Me	3.34	3.37	3.46	2.87	2.93	3.75	3.55	2.78	3.18	3.13	3.61	3.02	39.01
Portland, Oreg	7.31	7.86	6.92	3.65	2.62	1.74	.73	.88	1.81	5.37	3.41	3.58	55.81
Saint Louis, Mo	2.17	3.48	3.37	3.35	3.58	4.92	4.46	2.94	2.65	3.02	3.08	2.05	39.16
Saint Paul, Minn	1.08	1.17	1.63	1.38	3.48	4.86	3.23	3.68	3.20	2.88	1.38	1.32	29.26
San Diego, Cal	2.03	1.80	1.11	.77	.30	.06	.02	.06	.06	.59	.70	1.98	9.48
Sandy Hook, N. J	4.05	3.39	5.49	4.69	3.97	4.35	4.18	4.66	5.17	3.33	4.12	3.85	51.25
San Francisco, Cal	5.56	3.66	3.40	2.08	.89	.20	.01	(1)	.19	1.37	2.83	3.13	23.25
Savannah, Ga	3.75	2.98	3.21	5.17	2.67	6.63	5.06	6.31	5.48	4.11	2.84	3.68	51.83
Shreveport, La	4.88	4.88	5.37	6.24	3.98	2.70	4.62	2.22	4.74	4.01	5.06	4.70	53.39
Toledo, Ohio	2.01	2.04	2.29	2.09	3.16	3.95	3.65	3.14	2.70	3.08	3.10	2.33	33.54
Vicksburg, Miss	5.52	5.27	7.20	7.59	4.01	3.82	4.81	3.32	4.86	4.03	6.70	5.43	62.56
Washington City	3.50	2.94	4.04	3.35	2.87	4.58	4.18	5.04	4.74	2.70	2.76	3.56	44.27
Wilmington, N. C	4.01	3.06	4.17	3.82	3.37	6.64	6.77	7.63	7.91	4.34	2.56	3.47	57.75
Yankton, Dak	.61	.79	1.28	2.95	4.06	5.50	4.35	2.57	3.15	1.83	.41	.77	28.81

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[1] Inappreciable.

APPENDIX 53.

Table showing the mean monthly and mean annual precipitation at selected stations of the Signal Service, United States Army, computed from January, 1879, to December, 1883, inclusive.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Albany, N. Y	2.69	2.86	2.66	2.24	3.10	4.17	4.21	2.85	3.94	2.18	2.12	3.18	36.13
Alpena, Mich	2.39	2.93	2.34	2.18	4.64	5.50	3.87	3.26	4.49	4.12	3.72	2.50	41.93
Apache, Fort, Ariz	1.41	1.72	1.28	0.65	0.43	0.76	5.13	4.89	1.82	1.85	1.00	1.81	22.75
Atlanta, Ga	7.54	6.92	6.65	5.82	2.99	2.95	3.43	4.21	3.26	2.91	5.07	6.06	56.91
Atlantic City, N. J	4.55	4.02	4.05	3.48	2.14	3.48	2.88	7.99	3.67	3.44	2.60	4.43	46.74
Augusta, Ga	5.22	2.92	5.28	5.40	2.27	2.97	4.40	4.31	3.40	2.32	4.11	4.05	46.64
Baltimore, Md	3.65	3.52	4.23	2.82	2.18	5.52	3.63	4.22	4.07	2.28	1.72	4.14	41.95
Barnegat City, N. J	5.21	5.48	5.05	3.43	2.77	4.26	3.54	6.87	5.67	4.02	2.69	4.46	53.46
Bismarck, Dak	0.32	0.54	0.66	2.48	2.66	3.82	2.64	2.35	0.77	1.40	0.42	0.85	19.02
Boston, Mass	4.20	4.17	4.54	3.28	3.58	3.58	3.91	2.54	3.83	3.12	2.46	3.79	42.98
Brownsville, Tex	2.36	1.10	1.06	0.78	2.59	2.19	2.29	6.65	5.80	4.42	2.78	1.62	33.62
Buffalo, N. Y	2.48	2.99	2.34	1.84	3.94	3.60	2.54	2.98	2.20	3.52	3.41	3.67	35.51
Buford, Fort, Dak	0.87	0.57	0.60	1.25	2.56	3.02	2.61	1.15	0.94	1.05	0.37	1.09	16.08
Cairo, Ill	4.00	6.13	3.08	3.94	4.79	4.60	3.82	2.99	2.37	4.62	4.51	3.48	48.25
Cape Henry, Va	4.78	3.39	6.20	5.17	2.24	4.06	6.75	5.79	4.21	4.62	4.21	4.16	55.58
Cape May, N. J	4.94	3.72	5.09	2.90	2.12	4.26	3.32	7.93	3.53	4.18	3.27	5.03	50.25
Charleston, S. C	3.12	2.42	3.67	3.90	3.04	3.79	6.56	6.84	4.90	5.08	3.19	3.19	49.71
Charlotte, N. C	5.79	4.30	4.96	4.78	2.40	3.16	5.34	5.19	3.16	3.60	3.71	4.90	51.24
Chattanooga, Tenn	8.34	5.07	6.36	5.82	3.82	3.30	3.39	4.60	4.09	3.56	5.22	5.84	59.42
Cheyenne, Wyo	0.38	0.16	0.35	1.47	1.86	1.57	1.61	1.57	0.81	0.85	0.22	0.23	11.10
Chicago, Ill	1.65	3.47	2.29	3.88	4.71	4.79	4.28	2.33	2.01	4.69	3.70	1.95	39.84
Cincinnati, Ohio	3.99	5.39	4.52	3.58	5.22	6.17	2.69	4.87	2.49	3.92	3.79	5.01	51.60
Cleveland, Ohio	2.16	3.63	2.76	2.41	3.61	4.96	4.08	2.84	3.41	2.89	3.10	3.14	38.99
Columbus, Ohio	3.26	3.94	3.63	3.15	4.65	4.05	4.05	3.87	2.20	3.96	3.87	3.99	44.62
Concho, Fort, Tex	1.80	1.39	1.43	1.11	3.98	2.55	4.03	5.13	3.90	3.27	1.01	0.95	30.04
Davenport, Iowa	1.46	2.40	2.29	2.73	4.64	6.51	3.83	2.87	2.80	3.52	2.64	1.33	37.02
Denver, Colo	0.84	0.52	0.50	1.60	2.79	1.49	1.49	1.42	0.52	0.82	0.75	0.70	13.44
Des Moines, Iowa	1.06	1.69	1.40	2.58	6.54	9.30	3.37	3.99	2.97	4.97	3.31	1.54	42.72
Detroit, Mich	1.99	3.14	2.54	2.55	3.98	4.40	4.45	2.69	3.31	3.56	3.20	2.84	38.64
Dodge City, Kans	0.40	0.67	0.27	1.19	5.20	2.72	3.72	3.60	1.14	1.71	0.73	0.39	21.75
Dubuque, Iowa	1.34	1.79	1.87	2.65	4.08	6.04	6.05	3.41	4.95	3.60	2.78	1.55	40.06
Duluth, Minn	1.05	1.52	1.85	1.78	4.66	5.87	4.33	3.55	4.42	3.36	2.08	1.97	36.43
Eastport, Me	2.90	4.01	5.16	2.77	5.77	4.26	5.32	2.14	3.55	4.80	3.64	4.14	48.45
El Paso, Tex	0.73	0.45	0.59	0.10	0.39	0.11	4.26	2.25	1.04	0.98	0.52	0.68	12.10
Erie, Pa	2.68	3.43	2.64	2.73	3.63	3.93	2.85	3.16	3.71	3.58	5.08	3.88	41.20
Escanaba, Mich	1.91	1.73	1.64	1.15	3.98	5.40	3.36	3.91	4.41	3.50	2.93	1.98	35.90
Galveston, Tex	4.22	3.70	3.09	2.22	3.85	3.50	3.24	5.14	4.65	5.35	4.15	2.88	45.99
Grand Haven, Mich	2.54	3.49	2.66	2.72	3.58	4.96	4.71	3.18	3.91	4.42	4.16	2.78	43.00
Grant, Fort, Ariz	0.82	0.79	1.14	0.22	0.45	0.83	3.78	3.62	1.65	0.91	0.87	1.04	15.58
Indianapolis, Ind	2.99	5.25	4.15	3.54	5.41	5.86	3.01	3.27	3.10	4.35	5.41	3.76	50.08

Indianola, Tex	2.55	1.61	2.12	1.59	3.45	1.52	2.00	6.05	7.60	3.84	2.74	1.39	36.45
Jacksonville, Fla	4.05	2.47	2.18	3.75	3.69	3.85	6.32	3.17	5.94	9.23	3.81	1.87	54.80
Keokuk, Iowa	1.44	2.54	2.07	3.18	4.30	5.94	3.00	2.73	2.34	3.99	2.39	1.35	35.25
Key West, Fla	2.66	1.00	0.54	2.09	6.00	4.65	3.60	6.17	7.07	3.72	2.52	2.01	47.08
Kitty Hawk, N. C	6.45	3.86	6.42	5.11	2.91	3.96	3.18	3.85	5.10	3.83	4.93	4.57	63.67
Knoxville, Tenn	3.22	4.82	4.80	5.04	3.48	3.41	4.69	3.58	2.57	3.28	4.42	4.63	52.84
La Crosse, Wis	1.09	1.18	1.56	1.62	3.84	4.11	6.58	3.14	5.21	3.86	2.27	1.17	35.18
Leavenworth, Kans	1.04	2.17	1.89	2.39	4.81	6.55	4.12	2.55	3.12	4.97	3.51	1.14	37.26
Los Angeles, Cal	1.80	1.80	1.83	1.74	0.59	0.01	(1)	(1)	(1)	0.67	1.24	3.62	13.29
Louisville, Ky	4.04	6.03	4.47	4.84	4.03	3.70	2.97	3.86	2.98	4.01	4.05	4.86	49.83
Lynchburg, Va	4.22	2.73	3.56	3.05	2.03	3.19	3.47	3.78	4.00	2.86	2.18	4.61	39.58
Marquette, Mich	1.90	2.55	2.04	1.63	3.60	3.91	3.46	2.95	5.66	3.65	2.97	2.61	36.94
Memphis, Tenn	7.83	7.42	5.71	4.68	5.57	4 01	2.39	2.98	2.08	4.49	6.15	4.28	57.00
Milwaukee, Wis	1.45	2.69	2.31	1.96	3.13	3.99	4.17	2.16	2.35	2.66	2.00	1.48	30.37
Montgomery, Ala	3.81	5.31	5.38	5.73	3.59	3.28	3.54	3.90	2.57	4.00	2.74	6.19	50.19
Mount Washington, N. H	5.33	5.56	7.92	6.57	8.08	9.49	9.71	7.24	9.62	8.62	8.19	6.92	93.26
Nashville, Tenn	6.36	7.49	5.61	5.18	4.56	3.20	4.77	3.70	4.16	4.23	4.62	4.74	58.78
New Haven, Conn	4.15	4.68	5.43	3.05	3.58	3.11	5.33	4.81	4.63	3.53	2.44	3.90	48.14
New London, Conn	4.76	4.92	5.18	3.83	3.51	5.76	5.04	4.24	4.27	4.24	2.88	3.51	50.15
New Orleans, La	5.94	3.64	3.34	7.80	5.82	5.40	7.08	6.57	3.39	2.73	5.08	4.74	61.08
New York City	4.00	3.77	3.49	2.84	2.52	3.63	3.50	3.01	4.63	2.29	2.19	3.99	39.86
Norfolk, Va	4.81	2.95	3.87	4.21	2.89	4.26	5.40	5.86	5.04	3.24	2.91	3.52	47.95
North Platte, Nebr	0.84	0.55	0.41	1.60	3.48	4.98	3.69	2.21	1.18	1.97	0.28	0.60	21.69
Olympia, Wash. T	9.27	9.96	5.85	4.97	3.04	1.00	0.96	0.77	1.88	5.57	5.23	10.48	58.99
Omaha, Nebr	0.67	1.17	0.94	2.81	6.61	7.51	5.19	2.92	3.55	4.08	1.79	1.05	38.28
Oswego, N. Y	2.89	3.71	3.18	1.56	4.05	3.61	2.27	2.74	1.99	2.61	4.13	5.20	37.98
Philadelphia, Pa	3.82	3.53	3.05	2.86	2.29	4.02	3.00	4.64	3.90	2.14	1.50	3.22	37.06
Pike's Peak, Colo	2.57	1.66	2.54	4.46	4.86	1.44	4.99	5.09	1.71	1.56	2.80	1.22	34.41
Pittsburg, Pa	3.18	3.18	3.08	2.19	3.19	4.78	4.26	3.59	2.29	2.27	2.26	3.84	37.62
Port Huron, Mich	2.20	2.79	3.20	2.80	3.50	4.67	3.16	2.94	2.50	2.97	3.07	2.57	35.90
Portland, Me	3 78	4.20	3.30	2.21	2.95	3.95	3.58	1.70	3.78	2.99	3.17	3.72	39.32
Portland, Oreg	3.98	9.02	5.59	4.22	2.92	1.62	0.89	0.93	1.55	5.57	6.00	10.88	53.17
Prescott, Ariz	0.85	0.77	1.08	0.47	0.21	0.18	2.46	3.87	1.81	0.84	0.77	2.18	13.95
Roseburg, Oreg	6.58	4.45	3.58	3.35	1.98	0.96	0.36	0.47	0.86	3.36	2.81	6.71	35.48
Sacramento, Cal	3.02	2.86	3.09	4.23	1.05	0.15	(1)	(1)	0.35	1.01	1.56	4.01	21.32
Saint Louis, Mo	1.94	4.62	2.48	3.13	3.16	3.76	3.48	1.92	1.86	3.80	4.18	1.98	36.18
Saint Paul, Minn	1.81	1.51	1.53	1.81	3.74	3.98	4.37	2.93	3.29	2.45	1.66	1.65	30.23
Salt Lake City, Utah	1.27	1.06	0.97	2.95	1.15	0.84	0.18	0.93	0.30	1.87	1.05	1.67	14.23
San Diego, Cal	2.06	1.30	0.97	0.81	0.28	0.07	0.02	0.07	0.01	0.70	0.75	2.54	9.57
Sandy Hook, N. J	3.97	3.77	4.61	3.88	4.16	4.60	3.85	4.74	4.83	3.06	2.50	4.14	48.11
San Francisco, Cal	3.61	3.08	3.64	3.34	1.48	0.16	(1)	(1)	0.19	1.10	2.42	4.71	23.73
Savannah, Ga	3.71	2.09	2.80	4.67	2.65	4.59	4.17	6.64	4.65	3.84	2.30	3.86	45.97
Shreveport, La	5.19	6.14	3.65	6.27	3.99	2.81	5.63	2.22	4.17	3.84	7.05	3.56	54.03
Smithville, N. C	4.44	3.18	4.47	3.78	2.44	2.81	6.56	5.60	5.08	4.62	3.01	3.01	48.96
Stockton, Fort, Tex	0.86	0.41	0.50	0.81	1.34	1.39	2.31	3.33	7.82	1.13	0.39	0.54	20.82
Toledo, Ohio	1.56	2.63	1.85	2.29	3.55	4.20	4.48	2.52	3.19	3.62	3.37	2.56	35.83
Vicksburg, Miss	4.18	6.26	5.27	5.53	5.36	3.28	4.83	3.79	4.77	5.06	3.42	5.60	64.75
Washington City	4.20	3.55	4.19	2.98	2.86	4.68	3.29	4.00	3.87	1.91	1.71	4.01	41.27
Wilmington, N. C	3.80	2.67	4.40	3.92	3.04	5.51	7.97	7.69	6.15	3.60	2.79	2.52	54.07
Yankton, Dak	0.64	0.81	1.04	2.38	6.06	4.62	4.08	2.00	3.30	2.34	0.35	0.64	28.24

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[1] Inappreciable.

APPENDIX 54.

Monthly and annual precipitation reported by the voluntary observers of the Signal Service, United States Army, for the year ending June 30, 1884.

Stations.	1883.						1884.						
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Annual.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Accotink, Va	3.41	3.03	3.91	2.13	0.63	2.17	4.53	5.70	5.77	1.86	3.25	5.53	41.93
Aiken, S. C	(1)	(1)	(1)	(1)	3.48	1.61	2.58	3.08	7.16	4.40	3.13	(1)	....
Ainsworth, Wash. T	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.67	0.07	0.90	....
Albany, Oreg	0.00	0.08	1.07	4.06	4.50	6.72	3.91	8.90	3.12	4.30	0.89	3.38	40.88
Alexandria, Dak	6.72	3.80	1.68	1.60	0.06	1.18	0.23	1.04	(1)	(1)	(1)	(1)	....
Allison, Kans	(1)	(1)	(1)	(1)	0.00	1.52	0.22	0.68	2.81	1.90	9.04	2.34	....
Ames, Iowa	6.30	2.93	1.67	2.80	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Amherst, Mass	3.69	1.57	3.17	4.31	1.80	2.99	3.60	4.62	5.67	2.48	2.03	1.38	....
Andersonville, Ga	(1)	(1)	(1)	(2)	0.26	3.10	(1)	3.18	7.52	4.17	1.27	(1)	....
Andersonville, Tenn	3.06	1.88	3.18	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Anna, Ill	2.86	4.02	0.51	7.21	6.85	5.14	2.01	5.38	4.05	3.80	4.99	7.44	54.26
Ann Arbor, Mich	7.29	2.52	1.11	3.37	3.00	(1)	1.67	(1)	(1)	1.05	(1)	(1)	....
Antrim, N. H	5.55	0.95	2.85	5.05	2.10	3.65	(1)	(1)	(1)	4.70	2.95	1.30	....
Archer, Fla	6.55	3.61	2.98	1.30	0.75	0.21	5.43	2.14	5.83	2.45	4.72	11.66	52.68
Ardenia (Phillipstown), N. Y	3.97	2.68	2.68	5.82	1.87	1.06	(1)	(1)	(1)	(1)	2.43	1.91	....
Ashland, N. H	4.83	1.86	3.36	6.34	2.61	3.08	5.65	5.29	5.64	2.89	(1)	3.06	....
Ashwood, Tenn	7.30	5.30	2.60	7.50	3.50	4.80	6.80	7.30	6.10	6.00	3.90	3.80	64.99
Atchison, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.31	2.57	5.47	2.60	5.75	....
Athens, Ga	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	6.07	0.83	10.46	....
Auburn, Ala	(1)	(1)	(1)	3.01	1.85	5.47	5.88	4.20	(1)	(1)	(1)	(1)	....
Auburn, N. Y	(1)	(1)	(1)	(1)	(1)	1.74	2.96	1.88	1.71	0.30	3.67	1.68	....
Austin, Tenn	(1)	3.55	1.65	5.10	3.45	3.60	5.95	3.27	3.25	2.10	3.47	(1)	....
Austin, Tex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	4.45	7.78	7.85	1.46	....
Bainbridge Island, Wash. T	0.25	0.06	1.80	3.30	5.71	5.06	4.40	3.53	0.97	2.50	0.55	2.70	30.33
Bandon, Oreg	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.96	0.53	1.22	....
Barnesville, Tex	(1)	(1)	1.00	7.25	0.02	5.75	0.81	4.87	1.12	7.00	11.10	(1)	....
Battle Creek, Mich	5.00	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Beech Grove, Tenn	3.35	4.42	3.35	4.61	4.37	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Bell Plain, Kans	6.20	3.20	2.55	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Belmont, N. H	5.05	1.87	2.33	4.85	2.56	2.85	4.09	4.41	4.87	4.10	(1)	1.43	....
Beloit, Wis	4.91	2.36	1.85	4.25	2.68	1.53	0.64	(1)	1.52	2.85	2.62	5.15	....
Belvidere, N. J	(1)	(1)	(1)	7.18	1.55	3.03	4.49	4.78	(1)	2.36	(1)	(1)	....
Benton, Tenn	1.83	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Bethel, Conn	4.31	2.86	3.00	5.28	1.86	3.56	4.55	5.10	3.30	1.90	3.05	3.90	42.12

Blooming Grove, Pa	6.10	1.50	1.90	3.50	1.80	1.70	2.20	2.81	(1)	1.40	3.30	3.50	....
Bolivar, Tenn	6.44	2.42	1.15	12.09	4.46	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Bowling Green, Ky	4.40	2.15	3.25	5.37	4.01	4.65	4.69	6.89	5.12	(1)	(1)	(1)	....
Brevard, N. C	0.10	0.93	4.74	1.95	4.53	5.00	6.72	10.07	14.53	5.02	2.21	12.94	68.74
Bristol, N. H	3.89	1.01	3.01	5.67	4.42	3.43	4.41	5.67	3.08	2.37	3.59	2.10	42.65
Brownsville, Tenn	4.80	1.03	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Brunswick, Ga	7.77	7.78	1.50	3.50	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Bunker Hill, Ill	5.26	1.37	0.10	6.30	4.07	2.46	1.51	4.11	3.79	2.33	4.27	3.96	39.53
Burlington, Vt	(1)	(1)	(1)	(1)	1.59	1.44	2.14	2.68	2.89	1.92	3.60	1.36	....
Caldwell, N. J	2.37	1.78	5.56	5.23	1.30	3.54	5.54	6.51	4.65	3.20	4.56	5.60	49.84
Canal Dover, Ohio	(1)	(1)	(1)	1.92	3.02	1.62	(1)	7.57	3.35	0.64	3.48	(1)	....
Careyville, Tenn	1.42	2.65	(1)	(1)	6.01	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Carson City, Nev	0.00	0.02	0.04	1.10	0.13	0.06	2.46	2.77	3.23	1.29	0.29	1.97	13.36
Catawissa, Pa	4.63	2.26	2.41	3.32	1.42	1.91	3.17	3.61	4.08	2.92	3.38	3.63	36.74
Cath Soph, S. A	4.96	3.80	0.80	0.80	1.00	4.04	(1)	(1)	(1)	(1)	(1)	(1)	....
Cedar Rapids, Iowa	5.08	1.08	1.34	4.06	1.22	1.08	0.71	1.41	2.47	2.12	3.08	3.33	26.98
Chambersburg, Pa	4.36	2.74	3.33	3.23	1.59	3.79	3.23	4.48	4.90	1.22	4.42	5.22	42.51
Chapel Hill, N. C	3.25	2.67	6.65	3.25	1.77	1.84	4.95	2.58	6.20	2.68	4.97	3.89	44.70
Charlestown, Mass	2.75	0.82	1.57	5.85	2.25	2.92	7.74	6.85	(1)	(1)	(1)	(1)	....
Charlotte, Vt	5.40	(1)	3.90	2.80	2.10	2.90	3.60	4.90	4.25	2.90	4.40	2.20	....
Chester, Minn	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.48	2.83	2.88	4.78	....
Chuckaluck, Tenn	(1)	(1)	3.45	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Cincinnati, Ohio (G. W. H.)	1.71	1.60	1.89	6.70	3.63	2.63	1.59	6.45	2.24	2.34	4.97	2.38	38.13
Clarksville, Tex	(1)	(1)	(1)	(1)	0.95	3.34	2.49	10.38	2.98	(1)	9.58	5.77	....
Clay Centre, Kans	5.21	(1)	1.32	11.42	0.95	0.62	0.71	1.11	(1)	(1)	(1)	3.28	....
Clear Creek, Nebr	(1)	5.16	(1)	4.09	0.23	0.54	0.50	0.89	3.44	(1)	2.26	3.66	....
Cleburne, Tex	2.02	(1)	0.85	6.50	1.00	5.75	0.88	4.12	6.25	3.64	5.03	10.09	....
Cleveland, Ohio	4.25	2.45	4.35	3.78	2.52	2.61	2.48	5.01	2.42	1.91	3.00	2.06	36.84
Clinton, Ind	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	4.30	10.64	....
Cockburn Harbor, British West Indies	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.26	(1)	(1)	....
Coldwater, Mich	(1)	(1)	1.70	3.50	(1)	1.00	(1)	(1)	(1)	(1)	(1)	(1)	....
College City, Cal	(1)	(1)	(1)	(1)	(1)	(1)	3.61	2.21	5.46	2.48	0.17	2.04	....
College Hill, Ohio	4.00	3.00	1.75	7.00	4.00	7.25	3.50	5.00	2.00	2.25	4.75	2.00	46.50
Collinsville, Ill	2.30	0.82	0.40	5.69	4.22	1.02	0.82	4.46	2.83	3.44	4.21	3.78	33.99
Comfort, Tex	4.10	0.00	0.98	1.64	0.66	2.18	(1)	(1)	(1)	(1)	(1)	(1)	....
Conception, Mo	(1)	(1)	(1)	(1)	1.21	0.48	0.75	0.43	2.41	2.44	3.84	3.02	....
Contoocook, N. H	(1)	1.00	1.95	(1)	1.85	2.10	4.15	5.00	4.20	(1)	2.35	1.05	....
Conway, Kans	(2)	(1)	2.76	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Cooperstown, N. Y	4.77	3.21	5.05	2.96	1.76	1.98	3.17	3.10	4.48	1.20	3.97	2.16	37.82
Cornish, Me	6.21	1.05	2.45	3.89	2.53	(1)	2.74	7.28	5.31	(1)	4.38	1.88	....
Covington, Tenn	3.34	(1)	1.20	3.04	2.60	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Cresco, Iowa	12.70	1.51	4.43	1.50	1.17	1.27	0.38	1.51	1.64	2.71	2.44	4.47	35.73
Crete, Nebr	(1)	(1)	(1)	(1)	(1)	0.39	0.41	0.41	1.20	3.02	1.79	1.39	....
Cumberland, Md	4.05	1.46	2.59	2.09	0.87	1.75	1.85	3.64	5.14	1.96	5.33	3.33	34.06
Curryville, Mo	(1)	(1)	1.84	5.38	1.72	0.91	0.92	3.54	2.89	2.69	(1)	(1)	....
Dannemora, N. Y	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.86	4.52	6.62	2.23	....
De Soto, Nebr	2.69	4.66	2.64	3.05	0.52	0.87	0.65	1.23	3.20	2.39	1.81	3.99	27.70
Distributing Reservoir, District Columbia	3.90	3.55	4.05	3.00	2.21	2.67	5.28	7.19	7.00	2.37	1.90	6.20	49.32
Dorset, Vt	(1)	(1)	(1)	(1)	1.54	1.95	2.61	5.17	4.98	2.49	3.96	2.66	....
Drifton, Pa	(1)	(1)	(1)	(1)	(1)	(1)	4.30	(1)	4.04	4.36	3.62	2.88	....

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[1] No record.

[2] Inappreciable.

Monthly and annual precipitation reported by the voluntary observers of the Signal Service, &c.—Continued.

Stations.	1883.						1884.						
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Annual.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Dudley, Mass	2.34	0.92	0.56	4.77	1.56	1.26	(1)	(1)	(1)	(1)	2.98	(1)	....
Dyberry, Pa	5.02	0.95	2.45	3.68	2.27	2.33	3.75	5.59	3.93	3.00	3.86	1.27	38.10
Dyersburg, Tenn	6.45	4.00	(1)	5.22	1.99	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
East Harbor, British West Indies	(1)	0.00	3.96	1.81	4.94	1.51	1.56	1.04	(1)	(1)	5.91	4.53	....
Easton, Pa	4.86	2.36	4.27	5.22	(1)	3.36	4.73	4.77	4.97	2.88	2.28	2.87	....
East Portland, Oreg	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2.16	0.09	0.12	....
East Tawas, Mich	4.76	0.66	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Edgington, Ill	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2.25	(1)	(1)	(1)	(1)	....
Elk Falls, Kans	3.50	(1)	3.50	(1)	1.00	2.75	2.50	1.50	(1)	4.00	4.00	2.00	....
Elmira, Ill	4.19	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Embarrass, Wis	7.80	3.99	5.68	3.40	(1)	1.20	(1)	(1)	1.75	3.40	3.75	3.35	....
Emmitsburg, Md	(1)	(1)	3.90	4.44	2.07	3.94	(1)	(1)	(1)	2.14	7.19	0.40	....
Emporia, Kans	3.73	2.14	1.25	6.74	0.34	1.42	(1)	1.16	(1)	4.38	2.49	4.34	....
Eola, Oreg	0.00	0.00	0.78	3.11	5.29	5.63	3.46	5.54	2.49	3.09	0.42	1.67	31.48
Factoryville, N. Y	5.18	2.91	2.79	1.61	0.91	1.36	2.42	2.07	4.37	1.49	3.54	1.24	29.89
Fall Brook, Cal	(1)	(1)	(1)	(1)	(1)	(1)	3.56	15.39	10.90	(1)	(1)	(1)	....
Fall River, Mass	4.22	1.18	3.41	5.76	4.01	3.23	6.25	6.15	5.63	3.71	4.25	4.05	51.85
Fallsington, Pa	2.05	5.36	3.64	4.02	1.56	3.81	4.90	5.04	4.79	2.25	4.48	5.30	46.70
Fallston, Md	3.98	3.56	5.22	2.99	1.79	5.23	4.16	7.01	5.71	1.94	3.86	5.00	50.45
Fayetteville, Ark	(1)	(1)	(1)	(1)	(1)	3.98	2.70	3.05	3.32	5.03	4.14	4.77	....
Flat Creek, Tenn	4.20	3.36	3.05	5.06	4.99	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Florence Station, Tenn	2.58	4.80	1.30	6.82	3.11	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Flushing, N. Y	3.60	1.95	3.12	5.79	0.85	3.75	(1)	5.35	(1)	(1)	(1)	(1)	....
Forsyth, Ga	2.44	5.94	1.20	2.16	3.06	4.49	3.97	4.87	11.93	4.93	1.72	6.73	53.44
Fort Collins, Colo	(1)	1.78	0.10	1.27	0.00	0.93	(1)	(1)	1.15	3.92	4.84	(1)	....
Fort Madison, Iowa	7.90	1.73	0.90	3.96	2.55	1.00	(1)	(1)	4.70	2.00	4.95	4.28	....
Fort Madison, Wis	(1)	(1)	(1)	(1)	(1)	(1)	0.60	1.50	(1)	(1)	(1)	(1)	....
Fort Scott, Kans	4.55	1.00	0.22	7.78	0.76	1.88	1.45	2.83	2.44	7.53	9.08	3.33	42.80
Fort Wayne, Ind	3.42	1.95	2.57	5.19	3.67	1.05	2.50	4.01	2.73	1.51	4.02	2.06	34.67
Frankfort, Ky	3.32	0.54	2.24	6.17	4.35	5.42	5.05	3.56	(1)	3.32	5.19	2.80	....
Franklin, Pa	7.17	1.64	2.82	3.10	2.78	3.71	5.20	4.35	3.66	1.47	2.39	5.54	43.83
Franklin, Tenn	3.88	4.51	2.52	4.69	2.86	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Franklin, Wis	(1)	(1)	1.55	1.87	2.92	(1)	(1)	(1)	(1)	6.30	3.45	2.63	....
Freehold, N. J	2.65	2.52	5.22	5.77	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Fremont, Nebr	2.77	5.15	3.04	2.94	0.16	0.86	1.60	1.19	2.76	3.20	1.40	3.29	28.36
Friendship, N. Y	5.82	2.30	2.09	2.27	1.77	0.55	4.80	(1)	(1)	(1)	(1)	(1)	....
Gadsden, Tenn	6.99	3.86	0.27	4.88	3.61	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....

Gardiner, Me	3.49	0.32	3.11	4.48	2.92	3.67	5.40	7.29	5.40	6.58	4.00	1.22	47.88
Garrettsville, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	5.45	(1)	4.17	1.58	1.73	1.49	....
Genda Springs, Kans	(1)	3.70	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Genoa, Nebr	4.91	1.75	1.75	3.25	(1)	1.75	0.70	1.20	2.75	3.05	4.20	2.47	....
Germantown, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	4.18	2.02	3.25	4.57	....
Golden, Colo	(1)	(1)	(1)	(1)	(1)	1.53	(1)	0.95	(1)	(1)	(1)	(1)	....
Grafton, N. H	4.81	1.44	3.42	4.98	2.81	3.05	(1)	(1)	5.05	(1)	(1)	(1)	....
Grampian Hills, Pa	6.05	1.66	2.24	2.89	2.55	3.75	3.29	4.69	5.10	3.00	2.86	9.85	47.93
Grand Coteau, La	1.97	0.42	0.97	2.69	5.71	4.76	9.88	2.50	10.20	5.62	14.03	2.50	61.25
Grand Junction, Colo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.74	(1)	(1)	....
Grand Rapids, Mich	(1)	(1)	2.10	(1)	(1)	0.81	2.51	(1)	2.96	1.22	3.28	5.28	....
Grand Turk Island, B. W. I	1.60	0.89	4.72	2.34	6.74	1.67	1.10	0.80	1.87	0.04	2.83	2.24	26.84
Grand View, Tenn	1.20	2.04	1.39	3.70	5.90	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Grassy Cove, Tenn	2.10	4.78	2.06	(1)	2.88	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Great Falls Reservoir, Md	1.56	1.53	1.91	2.16	0.56	1.67	5.10	5.75	5.84	1.98	3.19	5.80	37.05
Greeneville, Tenn	2.30	(1)	1.24	4.10	2.10	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Greenfield, Ind	3.15	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Green Springs, Ala	2.57	6.95	0.68	2.20	4.53	5.99	7.67	6.48	9.17	5.19	1.18	7.57	60.18
Grief, Tenn	1.81	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Griffin, Ind	3.65	(1)	1.73	7.88	5.96	5.12	1.63	(1)	2.84	2.73	(1)	(1)	....
Gunnison, Colo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.20	(2)	(1)	(1)	....
Guttenberg, Iowa	10.01	1.25	2.36	1.69	1.80	1.65	0.76	1.79	1.87	1.60	2.84	4.18	31.80
Hampton, Va	2.10	1.50	(1)	4.10	0.90	2.00	(1)	(1)	(1)	1.00	2.30	(1)	....
Hardison's Mills, Tenn	(1)	4.74	(1)	5.85	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Harrisville, Mich	(1)	0.76	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Hartford, Conn	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.86	1.73	....
Haverford College, Pa	(1)	(1)	(1)	(1)	1.70	(1)	(1)	5.88	4.92	2.47	3.33	5.72	....
Hector, N. Y	(1)	(1)	(1)	3.25	1.80	0.75	2.20	0.60	(1)	(1)	(1)	(1)	....
Helvetia, W. Va	7.84	1.73	3.09	5.21	2.05	5.15	6.00	5.24	4.96	2.70	4.51	5.69	54.17
Highlands, N. C	1.10	1.13	4.86	2.15	5.50	5.05	3.60	10.10	13.55	5.40	2.45	8.35	63.24
Hillsdale, Mich	5.25	1.77	1.82	4.22	3.66	1.87	1.11	4.36	2.48	1.70	4.13	5.39	37.76
Hiram, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	5.14	(1)	5.28	1.92	(1)	1.64	....
Holton, Kans	5.37	2.62	0.88	9.38	0.37	0.50	1.12	0.87	4.75	(1)	(1)	(1)	....
Honey Grove, Tex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.40	6.80	(1)	....
Howell, Tenn	1.73	3.27	3.32	3.98	4.96	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Hudson, Mich	(1)	(1)	(1)	(1)	4.00	2.13	2.36	3.42	(1)	(1)	4.58	3.61	....
Hulmeville, Pa	(1)	5.23	5.05	4.27	(1)	(1)	3.15	5.60	(1)	(1)	1.80	4.87	....
Humboldt, Iowa	6.12	2.26	2.22	1.98	1.45	1.70	0.20	1.19	3.04	3.27	2.62	3.47	29.52
Humphrey, N. Y	6.69	2.55	2.85	3.33	3.02	(1)	2.14	3.62	3.50	2.14	5.11	14.15	....
Hydesville, Cal	(1)	(1)	(1)	(1)	1.68	5.14	4.43	4.30	7.03	6.28	0.50	0.63	....
Inavale, Nebr	(1)	(1)	2.00	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Independence, Iowa	7.52	2.25	2.55	3.40	2.45	2.75	1.35	1.70	3.15	1.68	3.70	4.55	37.05
Independence, Kans	4.83	(2)	0.27	7.16	0.79	1.66	0.68	2.23	1.00	4.85	1.27	2.52	27.26
Indianola, Iowa	3.25	2.67	1.35	4.87	2.30	1.10	0.38	1.98	2.50	1.83	3.56	3.80	29.59
Ionia, Mich	7.44	0.07	3.00	3.28	3.76	1.27	2.24	3.37	3.51	2.16	2.81	2.03	35.84
Ithaca, N. Y	4.31	2.81	3.57	2.25	1.50	1.15	3.13	2.64	3.41	1.88	4.36	1.35	32.36
Jacksonburg, Ohio	2.50	2.55	(1)	6.50	3.50	2.75	2.60	7.65	3.10	2.55	5.40	1.65	....
Jeffersonville, Ind	(1)	(1)	(1)	(1)	5.35	5.02	(1)	8.81	3.60	2.30	4.94	4.06	....
Johanna Maria, S. A	6.71	3.29	0.84	0.84	7.30	2.65	(1)	(1)	(1)	(1)	5.68	(1)	....
Johnson, Nebr	4.45	0.80	1.25	4.15	0.50	0.26	0.50	1.01	3.71	2.80	(1)	(1)	....

(1) No record.

(2) Inappreciable.

Monthly and annual precipitation reported by the voluntary observers of the Signal Service, &c.—Continued.

Stations.	1883.						1884.						Annual.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Johnsontown, Va	5.10	5.15	5.90	4.70	0.60	2.85	6.65	6.55	3.75	1.70	(1)	1.05	....
Johnstown, N. Y	3.51	1.32	4.68	1.76	3.56	2.64	(1)	(1)	(1)	(1)	(1)	(1)	....
Kalamazoo, Mich	4.14	0.42	(1)	2.97	(1)	(1)	(1)	4.32	(1)	2.11	3.96	4.86	....
Kansas City, Mo	(1)	(1)	(1)	(1)	(1)	(1)	1.20	(1)	(1)	(1)	(1)	(1)	....
Kew, B. W. I	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.78	12.06	7.64	....
Kiantone, N. Y	3.84	1.45	(1)	3.38	3.13	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Kingston Springs, Tenn	5.10	5.29	0.98	6.21	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Laconia, Ind	3.46	2.20	0.56	5.31	5.22	4.09	3.19	9.19	5.05	2.46	4.07	4.73	49.53
Lafayette, Ind	4.68	1.77	1.46	5.56	3.09	2.38	1.09	5.08	1.87	2.79	3.31	4.12	37.20
Lake Village, N. H	4.61	1.22	3.02	4.75	2.61	3.19	4.16	5.02	5.31	3.40	(1)	1.88	....
Lancaster, Wis	(1)	(1)	3.31	2.35	2.38	(1)	(1)	(1)	2.02	2.22	3.38	4.82	....
Lansing, Mich	10.12	0.21	3.37	3.64	4.08	0.93	1.92	3.24	3.71	2.12	4.34	3.09	40.86
Larchland, Ill	(1)	(1)	(1)	(1)	2.72	1.26	0.40	1.52	(1)	(1)	(1)	(1)	....
Lawrence, Kans	(2)	2.12	1.25	6.75	0.73	0.77	1.28	1.13	2.73	5.62	3.57	3.81	29.76
Lead Hill, Ark	11.60	4.79	1.52	18.11	5.77	4.52	2.05	10.93	3.95	3.89	5.93	3.57	76.63
Lebanon, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	1.09	(1)	(1)	(1)	(1)	(1)	....
Leetsdale, Pa	4.62	3.11	3.74	2.73	2.24	3.40	5.33	5.11	3.97	1.28	2.88	5.29	43.70
Lenoir, N. C	3.70	6.00	6.50	4.60	3.40	1.60	3.80	4.90	9.40	4.50	2.40	10.30	61.10
Levi, Kans	4.76	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Limona, Fla	2.20	(1)	5.68	2.25	(2)	(1)	0.88	0.71	2.15	3.20	3.48	9.45	....
Lincoln, Nebr	1.33	11.25	0.83	4.25	(1)	0.25	(1)	(1)	(1)	(1)	(1)	(1)	....
Litchfield, Mich	4.96	3.08	2.50	3.28	3.30	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Livingston, Tenn	3.63	4.42	2.13	6.49	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Logan, Iowa	3.30	5.00	4.10	2.50	0.10	1.10	1.30	1.50	1.70	3.10	2.10	3.40	29.20
Logansport, Ind	5.87	2.61	3.14	5.29	3.46	2.09	1.80	4.43	1.50	2.19	3.42	4.25	42.56
Lunenburg, Vt	4.80	1.18	2.90	3.80	2.08	1.00	3.20	2.80	1.50	0.86	4.25	1.95	29.82
Madison, Wis	3.99	2.34	2.39	3.79	2.56	1.95	(1)	(1)	2.31	4.51	4.21	5.47	....
Manchester, Iowa	(1)	0.82	2.04	2.90	2.14	(1)	(1)	1.33	1.99	2.81	2.67	3.99	....
Manchester, Tenn	4.21	6.36	3.56	5.54	4.07	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Manhattan Kans, (B)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.52	2.08	3.45	5.18	(1)	....
Manhattan, Kans	4.15	2.61	1.71	7.31	0.20	0.45	0.31	0.58	(1)	(1)	(1)	4.12	....
Manistique, Mich	(1)	(1)	(1)	(1)	(1)	(1)	0.94	4.47	0.84	2.82	1.76	0.97	....
Manitowoc, Wis	13.68	1.08	2.36	1.38	2.41	0.96	(1)	(1)	1.59	4.30	2.43	5.16	....
Margaretta Township, Ohio	5.00	4.80	3.13	3.20	2.73	2.05	1.18	4.67	2.99	1.48	3.46	2.15	36.84
Marion, Va	1.96	1.11	2.66	2.45	2.15	2.52	4.42	5.82	6.70	3.37	2.04	3.97	39.17
Marquette, Nebr	2.20	3.68	0.85	3.28	(1)	0.87	7.75	5.37	4.68	3.13	5.86	1.58	....
Marshall, Mich	(1)	(1)	(1)	(1)	(1)	(1)	2.80	3.90	(1)	0.51	3.88	4.72	....

Maryville, Tenn	2.95	3.77	3.56	3.47	4.45	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Mattoon, Ill	4.64	1.78	0.80	9.40	4.73	2.26	0.90	5.44	2.75	4.16	5.00	6.87	48.78
Maud, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2.45	(1)	(1)	....
Mayport, Fla	3.08	5.73	5.86	3.17	0.64	0.44	3.53	3.62	3.06	1.88	4.41	7.23	42.65
Mazatlan, Mexico	4.55	7.82	7.29	3.41	(1)	1.06	3.88	(1)	(1)	(2)	1.50	2.01	....
McDonogh, Md	2.92	2.03	4.19	2.85	1.00	2.97	(1)	6.04	5.24	1.38	3.18	2.95	....
McKenzie, Tenn	4.77	1.93	0.34	5.18	2.37	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
McMinnville, Tenn	3.85	2.99	3.68	4.36	3.20	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
McNairy Station, Tenn	4.25	1.05	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Menand Station, near Albany, N. Y	6.78	2.09	3.17	3.29	0.97	0.99	0.95	1.75	4.83	1,67	2.89	1.96	31.34
Mendon, Mass	2.25	0.90	(1)	2.30	2.80	(1)	(1)	(1)	(1)	(1)	(1)	2.30	....
Mendon, Mich	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.97	5.39	2.19	....
Milan, Kans	(1)	4.55	1.25	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Milan, Tenn	5.56	4.26	0.70	4.72	4.45	3.85	4.45	7.96	4.49	5.55	4.98	3.84	54.81
Milledgeville, Ga	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	8.88	4.51	1.69	7.64	....
Millville Depot, Pa	(1)	(1)	(1)	(1)	(1)	(1)	7.40	(1)	(1)	(1)	(1)	(1)	....
Milton, Mass	2.78	0.76	1.73	6.30	2.44	2.38	5.72	5.46	4.70	4.21	3.01	4.22	43.71
Minneapolis, Minn	4.43	0.47	1.99	1.17	0.68	1.82	0.73	0.22	0.95	1.73	2.99	4.18	21.36
Monticello, Iowa	10.93	1.22	1.65	4.43	1.35	1.27	0.61	1.15	3.90	1.86	3.74	2.82	34.93
Moorestown, N. J	1.57	4.07	4.77	5.22	1.48	3.25	4.36	5.33	4.64	1.65	3.29	3.52	43.15
Morrison, Ill	5.17	(1)	(1)	(1)	6.30	(1)	(1)	(1)	(1)	(1)	2.84	4.83	....
Morriston, Dak	6.30	2.80	1.90	(1)	(1)	(1)	(1)	(1)	1.80	3.60	4.20	3.10	....
Mottville, Mich	(1)	(1)	1.50	2.88	4.75	1.78	1.12	3.34	3.58	1.58	27.16	(1)	....
Mountainville, N. Y	5.39	2.91	2.27	4.58	1.14	2.72	5.84	4.49	3.96	2.45	(1)	3.73	....
Mount Forest, Canada	(1)	(1)	2.22	(1)	(1)	(1)	(1)	(1)	(1)	0.94	(1)	4.88	....
Mount Ida, Ark	3.10	5.80	1.60	7.85	2.15	5.05	2.30	9.80	4.90	8.30	10.25	2.25	63.35
Murfreesborough, Tenn	2.84	(1)	(1)	3.56	3.09	(1)	(1)	(1)	(1)	(1)	(1(	(1)	....
Muscatine, Iowa	4.81	1.45	1.19	6.23	3.45	1.45	1.05	1.40	4.28	2.08	5.57	4.03	36.49
Nebraska City, Nebr	3.97	(1)	(1)	(1)	0.64	0.40	0.46	0.62	2.38	(1)	(1)	(1)	....
Neillsville, Wis	8.40	5.10	(1)	1.50	1.20	0.80	(1)	(1)	0.79	1.80	3.30	3.41	....
Nephi, Utah	1.40	0.70	0.15	2.25	1.70	2.00	0.86	3.70	2.15	6.30	2.70	0.50	24.41
Newark, N. J	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2.92	(1)	(1)	....
New Bedford, Mass	6.92	0.82	2.82	6.31	3.24	3.79	4.70	5.67	(1)	(1)	3.37	(1)	....
New Market, N. H	7.29	(1)	(1)	(1)	2.97	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Newport, Fla	(1)	(1)	(1)	0.00	0.99	1.14	4.77	4.25	5.92	4.17	(1)	(1)	....
Newport, Vt	(1)	2.65	4.48	3.54	2.02	2.21	3.55	4.03	3.61	2.56	6.79	4.33	....
New Tacoma, Wash. T	(1)	(1)	(1)	(1)	(1)	(1)	4.93	(1)	1.27	(1)	(1)	2.81	....
New Ulm, Tex	1.22	2.19	7.71	3.51	5.32	2.61	3.43	2.58	4.86	4.68	15.25	2.82	56.18
Nora Springs, Iowa	3.00	1.20	3.30	0.60	1.20	1.50	(1)	(1)	(1)	(1)	(1)	(1)	....
Northfield, Minn	6.73	2.72	0.92	1.08	1.00	1.61	0.75	1.82	1.17	2.02	2.56	5.16	27.54
North Lewisburg, Ohio	2.80	1.50	2.65	5.00	4.40	3.30	1.90	4.55	3.10	1.75	2.05	1.90	34.90
Northport, Mich	7.60	4.00	3.35	6.95	7.85	2.92	4.00	2.15	4.58	16.50	19.85	5.60	85.35
North Volney, N. Y	3.95	1.50	2.55	2.35	4.00	2.85	3.70	3.25	3.90	0.60	(1)	1,15	....
Oakland, Cal	0.00	(2)	1.00	1.03	0.90	(1)	3.81	5.25	8.59	5.79	0.55	3.03	....
Oakwood, Cal	0.00	0.00	0.00	2.96	0.00	3.32	(1)	(1)	(1)	(1)	(1)	(1)	....
Orono, Me	6.90	0.53	2.23	4.97	3.75	2.99	4.44	6.85	4.37	3.38	5.42	1.37	47.20
Oskaloosa, Iowa	(1)	(1)	(1)	(1)	(1)	4.50	0.72	(1)	(1)	(1)	(1)	(1)	....
Ottumwa, Iowa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.11	3.45	3.51	4.00	4.91	....
Palermo, N. Y	3.17	1.29	1.83	1.80	3.57	2.68	5.05	3.60	3.28	0.68	1.48	1.27	29.60
Parimaribo, Dutch Guiana, South America	10.73	2.76	2.83	1.54	6.14	4.32	6.50	(1)	(1)	(1)	18.33	8.45	....

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[1] No record.

[2] Inappreciable.

Monthly and annual precipitation reported by the voluntary observers of the Signal Service, &c.—Continued.

Stations.	1883.						1884.						Annual.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Paris, Tenn	4.90	2.00	0.73	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Paterson, N. J	2.92	1.80	5.41	4.38	0.97	2.89	5.16	5.74	3.20	2.40	4.47	(1)	....
Penn Yan, N. Y	2.33	4.30	2.27	2.87	1.50	1.63	3.28	2.15	2.68	1.33	2.73	2.82	28.89
Peoria, Ill	3.57	0.57	2.93	3.57	4.19	1.37	0.70	3.18	2.17	2.62	5.50	3.87	34.24
Peru, Nebr	2.44	3.50	3.25	5.46	0.50	(1)	0.40	(1)	3.30	(1)	1.15	5.84	....
Phillipsburg, N. J	4.92	1.44	3.99	4.83	1.28	1.81	3.83	4.38	3.47	2.07	(1)	3.73	....
Pierce City, Mo	9.30	4.80	0.20	8.90	2.80	2.30	0.90	4.70	1.30	5.60	4.10	4.20	49.10
Plant Waterloo, South America	10.60	3.97	0.42	0.42	4.70	7.15	(1)	(1)	(1)	(1)	(1)	(1)	....
Pleasant Grove, Wash	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.62	1.26	0.17	0.47	....
Point Lobos, Cal	0.00	0.00	0.22	0.43	0.61	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Point Pleasant, La	1.79	(2)	1.06	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Polo, Ill	5.04	0.97	1.61	5.42	4.03	1.56	1.45	2.43	2.17	(1)	2.77	4.80	....
Port Jervis, N. Y	6.47	1.32	2.53	4.09	1.12	1.81	3.62	4.29	4.45	3.29	3.75	2.12	38.86
Portsmouth, Ohio	4.13	0.82	1.46	6.47	3.08	5.86	5.34	6.11	5.55	3.90	4.80	3.47	50.58
Poway, Cal	0.00	(2)	0.00	1.59	0.00	2.40	1.59	(1)	6.96	4.81	2.26	0.44	....
Prairie du Chien, Wis	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2.42	3.10	....
Pretty Prairie, Kans	4.12	3.97	3.55	6.33	0.50	0.90	0.12	0.89	1.98	3.49	(1)	(1)	....
Princeton, Cal	0.00	0.00	0.58	0.64	0.10	0.14	4.08	2.86	5.06	2.71	0.05	2.12	17.78
Princeton, Mass	2.48	0.51	1.42	5.92	1.73	3.01	7.56	7.44	6.91	5.75	3.29	3.45	49.47
Princeton, N. J	0.00	0.00	0.68	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Providence, R. I	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	4.25	2.94	4.81	....
Pueblo, Colo	(1)	(1)	(1)	(1)	0.00	0.54	0.57	0.72	0.05	3.53	1.60	2.85	....
Puerto de Luna, N. Mex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.05	(1)	1.20	1.07	....
Pulaski, Tenn	(1)	(1)	1.82	3.92	4.80	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Quaker City, Ohio	7.23	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Quakertown, Pa	1.05	2.25	3.72	4.10	1.47	2.15	2.96	4.74	4.99	2.70	3.53	6.54	40.20
Quitman, Ga	(1)	(1)	(1)	(1)	(1)	(1)	6.00	(1)	5.05	(1)	(1)	(1)	....
Raleigh, N. C	(1)	(1)	(1)	(1)	(1)	(1)	5.70	(1)	(1)	(1)	1.20	(1)	....
Randolph, Vt	3.11	1.44	2.90	1.85	1.79	(1)	(1)	1.55	4.12	(1)	(1)	(1)	....
Rapid City, Dak	(1)	(1)	(1)	(1)	0.51	1.66	1.20	6.94	2.40	(1)	(1)	(1)	....
Readington, N. J	(1)	6.00	5.30	4.30	1.50	(1)	(1)	(1)	(1)	(1)	3.40	3.30	....
Receiving Reservoir, D. C	2.43	2.00	4.12	8.51	1.05	2.29	5.60	6.82	6.69	2.67	2.70	8.12	49.00
Red Willow, Nebr	2.67	3.65	3.15	3.92	0.02	1.53	0.33	(1)	1.10	1.47	5.34	2.28	....
Richardton, Dak	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.90	1.00	4.02	1.40	6.00	....
Richmond, Ky	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.68	2.48	3.21	....
Riddleton, Tenn	3.65	6.28	1.86	5.83	6.00	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Riley, Ill	2.94	1.17	2.04	4.28	4.08	1.67	0.80	2.20	1.51	2.85	2.56	4.23	30.27

Ripon, Wis	12.59	1.41	2.48	0.80	2.54	1.09	(¹)	(¹)	2.15	2.26	0.75	2.98	....
Rising Sun, Ind	2.45	2.55	1.50	4.45	(¹)	3.35	2.65	5.35	(¹)	(¹)	(¹)	2.60	....
Rockford, Ill	3.09	1.50	4.92	6.66	3.87	1.58	1.42	1.91	2.88	3.45	3.43	6.16	41.47
Rogersville, Tenn	3.15	1.61	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
Rolling Green, Kans	4.40	2.15	3.25	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
Rowe, Mass	5.30	2.15	3.05	6.25	1.82	2.60	3.27	5.10	4.65	1.85	3.15	1.60	40.79
Ruggles, Ohio	3.65	1.40	7.70	2.05	1.80	(¹)	2.20	3.75	(¹)	0.85	2.60	1.45	....
Sacramento, Cal	0.00	0.00	(¹)	(¹)	(¹)	(¹)	3.18	4.10	7.63	4.30	0.09	1.57	....
Sailors' Rest, Tenn	2.66	1.25	(¹)	2.42	4.83	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
Saint George's, Del	(¹)	4.55	4.50	(¹)	(¹)	3.45	3.45	9.65	12.20	(¹)	(¹)	(¹)	....
Saint Louis, Mo	(¹)	(¹)	0.00	(¹)	(¹)	(¹)	(¹)	(¹)	3.63	3.92	2.49	(¹)	....
Salem, Ind	(¹)	(¹)	2.06	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
Salem, N. J	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	3.06	1.32	2.49	....
Salina, Kans	4.05	1.01	1.04	8.08	0.04	0.09	0.02	0.05	1.09	2.09	2.07	5.09	24.72
Salinas City, Cal	(¹)	(¹)	0.19	1.19	0.25	0.90	1.70	4.49	5.09	3.05	0.72	2.66	....
Salt Cay, B. W. I	(¹)	0.83	1.45	1.57	4.88	2.38	0.83	0.52	(¹)	0.24	1.01	1.23	....
Sandwich, Ill	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	3.48	2.08	(¹)	2.10	3.24	....
Sandy Springs, Md	2.60	4.14	4.82	3.77	1.08	2.64	3.68	6.19	5.96	1.67	2.98	4.35	43.88
Santa Barbara, Cal	(¹)	(¹)	0.60	1.85	0.00	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
Savannah, Tenn	4.31	2.08	1.79	7.27	4.22	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
Sherlock, Kans	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	0.45	0.38	7.94	3.79	....
Smithville, Tenn	2.60	3.80	1.20	4.00	5.10	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
Snowville, Va	(¹)	(¹)	(¹)	2.30	....	(¹)	(¹)	(¹)	(¹)	(¹)	2.20	7.80	......
Somerset, Mass	3.81	0.83	2.81	4.34	3.20	3.05	6.00	4.12	4.91	4.83	2.93	3.56	44.39
Somerville, N. J	2.19	3.35	4.81	4.22	0.99	4.24	4.68	4.68	3.73	2.12	2.88	6.20	44.09
South Haven, Kans	7.37	(¹)	2.20	....	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
Southington, Conn	2.68	1.66	2.73	4.47	1.11	2.70	4.18	4.76	3.49	3.05	2.46	2.06	....
South Orange, N. J	2.23	2.50	4.80	5.00	0.95	4.06	6.00	4.85	4.28	2.85	3.30	6.02	46.84
Spiceland, Ind	3.80	6.35	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	4.23	2.11	....
Springfield, Ark	(¹)	(¹)	(¹)	(¹)	(¹)	3.42	4.15	10.15	(¹)	4.39	(¹)	1.14	....
Springfield, Mo	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	5.48	2.67	....
Stateburg, S. C	1.88	2.41	6.11	3.33	2.22	1.26	4.43	3.29	3.53	3.66	3.97	4.91	41.00
State College, Pa	(¹)	2.18	2.31	2.13	1.49	2.12	3.27	3.56	4.29	1.73	2.37	1.07	....
Statesville, N. C	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	6.06	(¹)	12.03	4.40	2.63	7.99	....
Station Albina, South America	3.96	2.76	1.85	1.85	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	7.18	(¹)	....
Stella, Nebr	(¹)	(¹)	(¹)	(¹)	(¹)	0.85	0.28	0.44	0.90	(¹)	(¹)	(¹)	....
Stockham, Nebr	3.25	7.13	1.75	4.25	0.00	0.85	0.80	(¹)	1.00	5.00	4.10	1.10	....
Strafford, Vt	6.00	2.40	3.60	2.60	1.70	2.50	3.00	4.70	5.20	2.10	4.55	1.60	39.95
Sunman, Ind	(¹)	4.95	2.95	5.75	3.77	4.94	2.00	7.48	2.11	2.40	3.82	2.89	....
Sussex, Wis	3.78	0.48	2.69	2.87	1.92	1.26	(¹)	(¹)	1.91	3.61	3.11	3.70	....
Swanwick, Ill	5.24	3.22	0.06	3.53	5.90	2.92	1.15	6.18	2.75	2.12	4.84	5.66	43.57
Swartz Creek, Mich	(¹)	(¹)	(¹)	(¹)	(¹)	0.61	1.09	3.00	3.99	2.07	3.17	3.50	....
Sycamore, Ill	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	0.71	2.15	2.02	4.06	3.18	4.53	....
Table Rock, Nebr	2.34	1.40	0.71	4.23	0.40	0.24	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
Tamaqua, Pa	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	3.73	(¹)	(¹)	3.29	4.35	3.74	....
Taunton, Mass	2.75	0.83	2.30	4.34	(¹)	1.81	4.35	4.84	5.33	4.12	2.73	4.04	....
Terre Haute, Ind (H.)	(¹)	(¹)	0.78	10.93	6.53	2.86	0.89	5.12	2.20	3.68	3.82	5.76	....
The Dalles, Oreg	0.00	00.0	0.01	0.46	2.19	1.77	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
Thornville, Mich	6.53	0.86	3.12	3.94	1.84	1.91	1.77	4.08	3.37	1.97	(¹)	3.76	....
Topeka, Kans	6.53	4.17	0.88	6.14	0.81	(¹)	0.65	2.88	3.19	4.88	3.51	5.18	....
Traverse City, Mich	6.53	1.84	2.76	3.43	4.71	2.78	3.19	3.07	2.29	2.12	2.11	2.79	37.60

[1] No record.

[2] Inappreciable.

APPENDIX 52.

Table showing the mean monthly and mean annual precipitation at selected stations of the Signal Service, United States Army, computed from January, 1874, *to December,* 1883, *inclusive.*

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Albany, N. Y	2.72	2.74	2.84	2.87	2.98	4.31	4.48	3.16	3.65	3.12	2.49	2.71	38.05
Alpena, Mich	2.10	2.26	2.13	1.80	4.11	4.28	3.69	3.67	4.59	5.00	3.09	2.20	38.92
Atlantic City, N. J	3.66	3.06	3.96	3.59	2.85	3.32	2.99	5.23	3.32	2.80	3.38	4.02	42.18
Augusta, Ga	4.65	3.64	5.58	5.07	2.31	4.28	4.36	4.79	4.14	2.33	3.95	4.06	49.15
Baltimore, Md	3.29	3.18	4.20	3.44	2.69	4.33	4.21	4.05	4.54	2.52	2.91	3.49	42.85
Barnegat City, N. J	4.96	3.97	5.33	4.09	2.82	3.92	4.07	4.85	5.45	3.58	4.38	4.31	51.74
Boston, Mass	4.18	3.74	5.22	4.32	3.25	3.63	3.97	3.62	3.22	3.92	5.02	3.36	47.46
Buffalo, N. Y	2.98	2.60	2.88	2.34	3.14	3.20	3.42	2.50	3.28	3.94	3.50	3.58	37.34
Cairo, Ill	4.64	4.47	4.50	4.24	4.10	4.96	4.14	3.13	2.20	3.43	4.74	3.32	47.86
Cape Henry, Va	4.77	3.61	6.05	5.75	3.43	3.88	6.02	5.39	5.71	4.25	4.47	4.48	57.82
Cape May, N. J	4.09	3.26	5.21	3.52	2.67	4.18	3.38	6.21	4.52	3.28	3.63	4.59	48.52
Charleston, S. C	3.98	3.54	4.05	5.60	4.20	5.51	8.12	6.12	6.12	5.43	3.30	3.63	59.60
Cheyenne, Wyo	.27	.13	.54	1.00	2.12	1.26	1.71	1.40	.91	.88	.25	.21	10.67
Chicago, Ill	1.91	2.69	2.88	3.45	3.82	4.74	4.19	2.84	2.59	4.32	3.22	1.88	38.53
Cincinnati, Ohio	4.16	4.06	4.45	3.24	3.70	5.52	4.20	4.13	2.31	3.25	3.73	3.95	46.70
Cleveland, Ohio	2.78	2.91	3.24	2.30	3.21	4.44	4.06	2.97	4.42	3.26	2.86	2.90	39.34
Davenport, Iowa	1.73	1.86	2.41	3.01	4.33	5.72	4.20	3.23	3.47	3.12	2.22	1.39	36.70
Denver, Colo	.76	.47	.84	1.60	3.21	1.49	1.80	1.54	.91	.80	.80	.78	14.99
Detroit, Mich	2.22	2.77	3.15	2.20	3.69	3.94	4.59	3.43	2.62	3.24	2.95	2.63	37.43
Dubuque, Iowa	1.48	1.53	2.30	2.92	3.93	5.72	5.70	3.18	5.31	3.22	2.58	1.54	39.41
Duluth, Minn	.94	1.07	1.75	2.06	4.13	5.65	3.49	3.55	4.60	3.21	1.86	1.62	34.02
Eastport, Me	3.15	3.73	5.45	3.29	4.50	4.39	4.86	3.23	3.74	4.55	4.54	3.61	49.02
Erie, Pa	3.32	3.12	3.12	2.57	3.57	4.28	3.12	2.93	4.42	4.18	4.51	3.25	42.39
Escanaba, Mich	1.45	1.39	1.80	1.95	3.82	5.37	3.16	4.62	4.21	4.09	2.88	1.66	36.40
Galveston, Tex	3.74	3.43	3.04	3.16	4.25	2.89	3.94	5.81	6.70	5.12	4.60	4.97	51.65
Indianapolis, Ind	2.96	4.01	4.57	3.43	4.66	6.27	4.79	3.53	2.82	3.72	4.37	3.29	48.42
Indianola, Tex	2.10	2.08	2.70	1.67	2.77	2.35	2.60	4.46	6.82	3.96	3.23	2.97	37.71
Jacksonville, Fla	3.20	3.81	2.49	3.96	3.88	4.93	5.15	7.37	7.18	7.02	3.01	2.68	54.62
Keokuk, Iowa	1.64	2.00	2.41	2.95	4.42	6.05	4.85	3.32	4.03	3.62	2.25	1.70	39.25
Key West, Fla	2.42	1.61	.74	1.64	4.76	4.40	3.79	5.84	6.96	6.99	2.35	1.45	42.94
Knoxville, Tenn	6.75	4.41	5.65	6.46	3.10	4.08	4.56	4.19	2.91	3.07	4.57	4.23	53.98
La Crosse, Wis	1.29	1.25	2.00	2.08	3.67	4.87	5.32	3.83	4.75	2.91	2.15	1.31	35.36
Leavenworth, Kans	1.30	1.72	2.50	3.40	4.74	6.26	4.51	2.78	3.12	3.59	2.85	1.53	38.31
Louisville, Ky	4.38	4.30	4.85	4.44	3.49	4.47	4.60	3.59	2.48	3.68	4.32	4.53	49.13
Lynchburg, Va	3.78	2.78	3.78	3.78	2.21	3.58	3.10	3.98	4.06	3.27	3.30	3.74	41.36

Marquette, Mich	1.32	1.56	1.53	1.61	2.97	4.66	3.09	3.04	5.14	4.12	2.62	1.88	33.54
Memphis, Tenn	6.31	5.25	6.28	6.74	4.66	5.13	2.98	3.50	2.66	3.65	5.34	3.94	56.44
Milwaukee, Wis	2.10	2.28	3.17	3.06	3.80	4.30	3.73	2.76	2.88	3.10	2.34	1.80	35.30
Montgomery, Ala	4.52	5.13	6.73	6.89	3.31	3.60	3.68	3.47	2.96	3.06	3.33	5.96	52.64
Mount Washington, N. H	4.63	4.10	7.69	7.05	7.08	9.35	10.07	7.83	9.00	6.92	7.18	6.28	87.12
Nashville, Tenn	5.70	5.51	5.53	6.20	3.80	3.99	5.45	3.86	3.69	3.25	4.41	4.17	55.05
New Haven, Conn	3.87	4.30	5.42	4.26	3.46	3.30	5.19	5.19	4.35	3.62	4.10	3.31	50.35
New London, Conn	4.13	3.92	5.81	4.28	3.14	3.58	4.94	5.20	3.53	3.81	3.84	3.22	48.90
New Orleans, La	5.49	4.84	5.60	7.84	4.61	5.78	7.22	5.86	4.52	3.02	5.20	5.54	65.01
New York City	3.69	3.50	4.21	3.33	2.46	3.18	4.08	4.08	4.27	2.75	3.12	3.36	42.02
Norfolk, Va	4.08	3.00	4.19	4.74	3.40	4.02	5.60	6.07	5,43	3.38	3.35	3.62	50.87
Omaha, Nebr	.58	.83	1.50	3.20	5.50	7.57	5.24	3.68	3.77	2.98	1.29	.94	37.08
Oswego, N. Y	3.28	3.00	3.05	1.98	3.11	3.67	3.55	2.85	2.70	3.15	3.70	4.29	37.82
Philadelphia, Pa	3.21	3.08	3.35	3.18	2.44	3.84	3.69	4.07	4.05	2.46	2.98	2.74	39.09
Pike's Peak, Colo	1.76	1.83	2.14	3.61	4.12	1.92	4.94	4.55	2.08	1.55	2.28	1.31	31.60
Pittsburg, Pa	3.01	2.60	3.38	2.77	2.80	3.88	4.92	2.82	3.14	2.07	2.84	3.08	37.20
Portland, Me	3.84	3.37	3.46	2.87	2.98	3.75	3.55	2.78	3.18	3.13	3.61	3.02	39.01
Portland, Oreg	7.81	7.86	6.92	3.65	2.62	1.74	.73	.88	1.81	5.87	3.41	3.58	55.81
Saint Louis, Mo	2.17	3.48	3.37	3.35	3.58	4.92	4.46	2.94	2.65	3.02	3.08	2.05	39.16
Saint Paul, Minn	1.08	1.17	1.63	1.88	3.48	4.86	3.28	3.68	3.20	2.38	1.88	1.32	29.26
San Diego, Cal	2.08	1.80	1.11	.77	.30	.06	.02	.06	.06	.59	.70	1.93	9.48
Sandy Hook, N. J	4.05	3.39	5.49	4.69	3.97	4.85	4.18	4.66	5.17	3.33	4.12	3.25	51.26
San Francisco, Cal	5.56	3.66	3.40	2.08	.89	.20	.01	(1)	.19	1.37	2.88	3.13	23.25
Savannah, Ga	3.75	2.98	3.21	5.17	2.67	6.62	5.06	6.31	5.48	4.11	2.34	3.68	51.38
Shreveport, La	4.88	4.88	5.37	6.24	3.98	2.70	4.62	2.22	4.74	4.01	5.06	4.70	53.39
Toledo, Ohio	2.01	2.04	2.29	2.09	3.16	3.95	3.65	3.14	2.70	3.08	3.10	2.33	33.54
Vicksburg, Miss	5.52	5.27	7.20	7.59	4.01	3.82	4.81	3.82	4.86	4.02	6.70	5.43	62.55
Washington City	3.50	2.94	4.04	3.35	2.87	4.58	4.18	5.04	4.74	2.70	2.76	3.56	44.27
Wilmington, N. C	4.01	3.06	4.17	3.32	3.37	6.64	6.77	7.63	7.91	4.34	2.56	3.47	57.75
Yankton, Dak	.61	.79	1.23	2.95	4.06	5.50	4.35	2.57	3.15	1.32	.41	.77	28.81

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[1] Inappreciable.

APPENDIX 53.

Table showing the mean monthly and mean annual precipitation at selected stations of the Signal Service, United States Army, computed from January, 1879, to December, 1883, inclusive.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Albany, N. Y	2.69	2.86	2.66	2.24	3.10	4.17	4.21	2.85	3.94	2.18	2.12	3.18	36.13
Alpena, Mich	2.39	2.93	2.34	2.18	4.64	5.50	3.87	3.26	4.49	4.12	3.72	2.50	41.93
Apache, Fort, Ariz	1.41	1.72	1.28	0.65	0.43	0.76	5.13	4.89	1.82	1.85	1.00	1.81	22.75
Atlanta, Ga	7.54	6.02	6.65	5.82	2.99	2.95	3.43	4.21	3.26	2.91	5.07	6.06	56.91
Atlantic City, N. J	4.55	4.02	4.05	3.48	2.14	3.48	2.88	7.99	3.67	3.44	2.60	4.43	46.74
Augusta, Ga	5.22	2.92	5.28	5.40	2.27	2.97	4.40	4.31	3.40	2.32	4.11	4.05	46.64
Baltimore, Md	3.65	3.52	4.23	2.82	2.18	5.52	3.63	4.22	4.07	2.23	1.72	4.14	41.95
Barnegat City, N. J	5.21	5.48	5.05	3.43	2.77	4.26	3.54	6.87	5.67	4.02	2.69	4.46	53.46
Bismarck, Dak	0.32	0.54	0.66	2.48	2.66	3.82	2.64	2.35	0.77	1.49	0.42	0.85	19.02
Boston, Mass	4.20	4.17	4.54	3.28	3.58	3.58	3.91	2.54	3.83	3.12	2.46	3.79	42.98
Brownsville, Tex	2.36	1.10	1.06	0.78	2.59	2.19	2.29	6.65	5.80	4.42	2.78	1.62	33.62
Buffalo, N. Y	2.48	2.99	2.34	1.84	3.94	3.60	2.54	2.98	2.20	3.52	3.41	3.67	35.51
Buford, Fort, Dak	0.87	0.57	0.60	1.25	2.56	3.02	2.61	1.15	0.94	1.05	0.37	1.09	16.08
Cairo, Ill	4.00	6.13	3.08	3.94	4.79	4.60	3.83	2.99	2.87	4.62	4.51	3.48	48.25
Cape Henry, Va	4.78	3.39	6.20	5.17	2.24	4.06	6.75	5.79	4.21	4.62	4.21	4.16	55.58
Cape May, N. J	4.94	3.72	5.09	2.90	2.12	4.26	3.32	7.93	3.53	4.13	3.27	5.03	50.25
Charleston, S. C	3.12	2.42	3.67	3.90	3.04	3.79	6.56	6.84	4.90	5.08	3.19	3.19	49.71
Charlotte, N. C	5.79	4.30	4.96	4.78	2.40	3.16	5.34	5.19	3.16	3.60	3.71	4.90	51.24
Chattanooga, Tenn	8.34	5.07	6.36	5.82	3.82	3.30	3.39	4.60	4.09	3.56	5.22	5.84	59.42
Cheyenne, Wyo	0.38	0.16	0.35	1.47	1.86	1.57	1.61	1.57	0.81	0.85	0.22	0.23	11.10
Chicago, Ill	1.65	3.47	2.29	3.88	4.71	4.79	4.28	2.33	2.01	4.69	3.70	1.95	39.84
Cincinnati, Ohio	3.99	5.39	4.52	3.58	5.22	6.17	2.69	4.87	2.49	3.92	3.79	5.01	51.60
Cleveland, Ohio	2.16	3.68	2.76	2.41	3.61	4.96	4.08	2.84	3.41	2.89	3.10	3.14	38.99
Columbus, Ohio	3.26	3.94	3.68	3.15	4.65	4.05	4.05	3.87	2.20	3.96	3.87	3.99	44.62
Concho, Fort, Tex	1.30	1.39	1.43	1.11	3.98	2.55	4.03	5.13	3.90	3.27	1.01	0.95	30.04
Davenport, Iowa	1.46	2.40	2.29	2.73	4.64	6.51	3.83	2.87	2.80	3.52	2.64	1.33	37.02
Denver, Colo	0.84	0.52	0.50	1.60	2.79	1.49	1.49	1.42	0.52	0.82	0.75	0.70	13.44
Des Moines, Iowa	1.06	1.69	1.40	2.58	6.54	9.30	3.87	3.99	2.97	4.97	3.81	1.54	42.72
Detroit, Mich	1.99	3.14	2.54	2.55	3.98	4.40	4.45	2.60	3.31	3.56	3.20	2.84	38.64
Dodge City, Kans	0.40	0.67	0.27	1.19	5.20	2.72	3.72	3.60	1.14	1.71	0.78	0.39	21.75
Dubuque, Iowa	1.34	1.79	1.87	2.65	4.03	6.04	6.05	3.41	4.96	3.60	2.78	1.55	40.06
Duluth, Minn	1.05	1.52	1.85	1.78	4.66	5.87	4.33	3.55	4.42	3.36	2.08	1.97	36.48
Eastport, Me	2.90	4.01	5.16	2.77	5.77	4.26	5.32	2.14	3.55	4.80	3.64	4.14	48.45
El Paso, Tex	0.73	0.45	0.59	0.10	0.39	0.11	4.26	2.25	1.04	0.98	0.52	0.68	12.10
Erie, Pa	2.68	3.43	2.64	2.73	3.63	3.93	2.85	3.16	3.71	3.58	5.08	3.88	41.20
Escanaba, Mich	1.91	1.73	1.64	1.15	3.98	5.40	3.36	3.91	4.41	3.50	2.93	1.98	35.90
Galveston, Tex	4.22	3.70	3.09	2.22	3.35	3.50	3.24	5.14	4.65	5.85	4.15	2.88	45.99
Grand Haven, Mich	2.54	3.49	2.66	2.72	3.58	4.96	4.71	3.13	3.91	4.42	4.16	2.73	43.00
Grant, Fort, Ariz	0.82	0.79	1.14	0.22	0.45	0.33	3.73	3.62	1.65	0.91	0.87	1.04	15.56
Indianapolis, Ind	2.99	5.25	4.15	3.54	5.41	5.86	3.01	3.27	3.10	4.35	5.41	3.76	50.08

Indianola, Tex	2.55	1.61	2.12	1.59	3.45	1.52	2.00	6.05	7.60	3.84	2.74	1.39	36.45
Jacksonville, Fla	4.05	2.47	2.18	3.75	3.69	3.85	6.82	3.17	5.94	9.23	3.31	1.87	54.80
Keokuk, Iowa	1.44	2.54	2.07	3.13	4.80	5.94	3.00	2.73	2.34	3.99	2.39	1.35	35.25
Key West, Fla	2.66	1.00	0.54	2.09	6.00	4.65	3.60	6.17	7.07	8.72	2.52	2.01	47.08
Kitty Hawk, N. C	6.45	3.86	6.42	5.11	2.91	3.96	3.18	3.85	5.10	3.83	4.98	4.57	63.67
Knoxville, Tenn	3.22	4.82	4.80	5.04	3.48	3.41	4.69	3.58	2.57	3.28	4.42	4.63	52.84
La Crosse, Wis	1.09	1.18	1.56	1.62	3.84	4.11	6.58	3.14	5.21	3.36	2.27	1.17	35.18
Leavenworth, Kans	1.04	2.17	1.39	2.39	4.81	6.55	4.12	2.55	3.12	4.97	3.51	1.14	37.26
Los Angeles, Cal	1.80	1.80	1.83	1.74	0.59	0.01	(1)	(1)	(1)	0.67	1.24	3.62	13.29
Louisville, Ky	4.04	6.03	4.47	4.84	4.03	3.70	2.97	3.86	2.98	4.01	4.05	4.86	49.83
Lynchburg, Va	4.22	2.73	3.56	3.05	2.03	3.19	3.47	3.73	4.00	2.86	2.13	4.61	39.58
Marquette, Mich	1.90	2.55	2.04	1.63	3.60	3.91	3.46	2.95	5.66	3.65	2.97	2.61	36.94
Memphis, Tenn	7.83	7.42	5.71	4.68	5.57	4.01	2.39	2.98	2.08	4.49	6.15	4.23	57.00
Milwaukee, Wis	1.45	2.69	2.31	1.96	3.18	3.99	4.17	2.16	2.35	2.66	2.00	1.48	30.37
Montgomery, Ala	3.81	5.31	5.58	5.73	3.59	3.23	3.54	3.90	2.57	4.00	2.74	6.19	50.19
Mount Washington, N. H	5.83	5.56	7.92	6.57	8.08	9.49	9.71	7.24	9.62	8.62	8.19	6.92	98.26
Nashville, Tenn	6.36	7.49	5.61	5.18	4.56	3.29	4.77	3.70	4.10	4.23	4.62	4.74	58.78
New Haven, Conn	4.15	4.68	5.48	3.05	3.58	3.11	5.33	4.31	4.63	3.53	2.44	3.90	48.14
New London, Conn	4.76	4.92	5.18	3.83	3.51	5.70	5.04	4.24	4.27	4.24	2.88	3.51	50.15
New Orleans, La	5.94	3.64	3.34	7.80	5.32	5.40	7.08	6.57	3.39	2.73	5.08	4.74	61.08
New York City	4.00	3.77	3.49	2.84	2.52	3.63	3.50	3.01	4.63	2.29	2.19	3.90	39.86
Norfolk, Va	4.81	2.95	3.87	4.21	2.89	4.26	5.40	5.36	5.04	3.24	2.91	3.52	47.95
North Platte, Nebr	0.84	0.55	0.41	1.60	3.48	4.98	3.69	2.21	1.18	1.97	0.28	0.60	21.69
Olympia, Wash. T	9.27	9.96	5.85	4.97	3.04	1.00	0.96	0.77	1.88	5.57	5.23	10.48	58.99
Omaha, Nebr	0.67	1.17	0.94	2.81	6.61	7.51	5.19	2.92	3.55	4.08	1.79	1.05	38.28
Oswego, N. Y	2.89	3.71	3.18	1.56	4.05	3.61	2.27	2.74	1.99	2.61	4.18	5.20	37.98
Philadelphia, Pa	3.82	3.53	3.05	2.36	2.29	4.02	3.00	4.64	3.90	2.14	1.50	3.22	37.06
Pike's Peak, Colo	2.57	1.66	2.54	4.46	4.86	1.44	4.99	5.09	1.71	1.56	2.30	1.22	34.41
Pittsburg, Pa	3.18	3.18	3.08	2.19	3.19	4.78	4.26	3.59	2.29	2.27	2.26	3.34	37.62
Port Huron, Mich	2.20	2.79	3.20	2.30	3.50	4.67	3.16	2.94	2.50	2.97	3.07	2.57	35.90
Portland, Me	3.78	4.20	3.30	2.21	2.96	3.95	3.58	1.70	3.78	2.99	3.17	3.72	39.32
Portland, Oreg	8.98	9.02	5.59	4.22	2.92	1.62	0.89	0.98	1.55	5.57	6.00	10.88	58.17
Prescott, Ariz	0.85	0.77	1.08	0.47	0.21	0.13	2.46	3.87	1.31	0.34	0.77	2.18	18.95
Roseburg, Oreg	6.58	4.45	3.58	3.35	1.98	0.96	0.36	0.47	0.86	3.36	2.81	6.71	35.48
Sacramento, Cal	3.02	2.86	3.09	4.23	1.05	0.15	(1)	(1)	0.35	1.01	1.56	4.01	21.32
Saint Louis, Mo	1.94	4.62	2.43	3.13	3.16	3.76	3.48	1.92	1.86	3.80	4.13	1.93	36.18
Saint Paul, Minn	1.31	1.51	1.53	1.81	3.74	3.98	4.87	2.93	3.29	2.45	1.66	1.65	30.23
Salt Lake City, Utah	1.27	1.06	0.97	2.95	1.15	0.84	0.18	0.93	0.30	1.87	1.05	1.67	14.23
San Diego, Cal	2.06	1.30	0.97	0.81	0.28	0.07	0.02	0.07	0.01	0.70	0.75	2.54	9.57
Sandy Hook, N. J	3.97	3.77	4.61	3.88	4.16	4.60	3.85	4.74	4.83	3.06	2.50	4.14	48.11
San Francisco, Cal	3.61	3.08	3.64	3.34	1.48	0.16	(1)	(1)	0.19	1.10	2.42	4.71	23.73
Savannah, Ga	3.71	2.09	2.80	4.67	2.65	4.59	4.17	6.64	4.65	3.84	2.30	3.36	45.97
Shreveport, La	5.19	6.14	3.65	6.27	3.99	2.81	5.68	2.22	4.17	3.84	7.05	3.56	54.03
Smithville, N. C	4.44	3.13	4.47	3.78	2.44	2.81	6.56	5.60	5.08	4.62	3.01	3.01	48.96
Stockton, Fort, Tex	0.36	0.41	0.50	0.31	1.34	1.89	2.81	3.33	7.32	1.13	0.89	0.54	20.82
Toledo, Ohio	1.56	2.63	1.85	2.29	3.55	4.20	4.48	2.52	3.19	3.62	3.37	2.56	35.88
Vicksburg, Miss	4.18	6.26	5.27	5.53	5.36	3.28	4.83	3.79	4.77	5.06	3.42	5.60	64.75
Washington City	4.20	3.55	4.19	2.98	2.36	4.68	3.29	4.00	3.87	1.91	1.71	4.01	41.27
Wilmington, N. C	3.80	2.67	4.40	3.92	3.04	5.51	7.97	7.69	6.15	3.60	2.79	2.52	54.07
Yankton, Dak	0.64	0.81	1.04	2.38	6.06	4.62	4.08	2.00	3.30	2.34	0.85	0.64	28.24

[1] Inappreciable.

APPENDIX 54.

Monthly and annual precipitation reported by the voluntary observers of the Signal Service, United States Army, for the year ending June 30, 1884.

Stations.	1883.						1884.						Annual.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Accotink, Va	3.41	3.03	3.91	2.18	0 63	2.17	4.58	5.70	5.77	1.86	3.25	5.58	41.93
Aiken, S. C	(1)	(1)	(1)	(1)	3.48	1.61	2.58	3.08	7.16	4.40	3.18	(1)	....
Ainsworth, Wash. T	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.67	0.07	0.90	....
Albany, Oreg	0.00	0.08	1.07	4.06	4.50	6.72	3.91	3.90	3.12	4.30	0.80	3.23	40.88
Alexandria, Dak	6.72	3.80	1.68	1.60	0.06	1.18	0.22	1.04	(1)	(1)	(1)	(1)	....
Allison, Kans	(1)	(1)	(1)	(1)	0.00	1.52	0.22	0.68	2.81	1.90	9.04	2.34	....
Ames, Iowa	6.80	2.92	1.67	2.80	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Amherst, Mass	3.69	1.57	3.17	4.81	1.80	2.99	3.60	4.62	5.67	2.48	2.03	1.88	....
Andersonville, Ga	(1)	(1)	(1)	(2)	0.26	3.10	(1)	3.18	7.52	4.17	1.27	(1)	....
Andersonville, Tenn	3.06	1.88	3.18	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Anna, Ill	2.86	4.02	0.51	7.21	6.85	5.14	2.01	5.38	4.05	3.80	4.99	7.44	54.26
Ann Arbor, Mich	7.29	2.52	1.11	3.87	3.00	(1)	1.07	(1)	(1)	1.05	(1)	(1)	....
Antrim, N. H	5.55	0.95	2.85	5.05	2.10	3.65	(1)	(1)	(1)	4.70	2.95	1.30	....
Archer, Fla	6.55	3.61	2.98	1.80	0.75	0.21	5.43	2.14	5.88	2.45	4.72	11.66	52.68
Ardenia (Phillipstown), N. Y	3.97	2.68	2.68	5.82	1.87	1.06	(1)	(1)	(1)	(1)	2.43	1.91	....
Ashland, N. H	4.83	1.86	3.86	6.34	2.61	3.08	5.65	5.29	5.64	2.89	(1)	3.06	....
Ashwood, Tenn	7.80	5.80	2.60	7.50	3.50	4.80	6.80	7.80	6.10	6.00	3.90	3 80	64.90
Atchison, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.81	2.57	5.47	2.60	5.75	....
Athens, Ga	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	6.07	0.82	10.46	....
Auburn, Ala	(1)	(1)	(1)	3.01	1.85	5.47	5.88	4.20	(1)	(1)	(1)	(1)	....
Auburn, N. Y	(1)	(1)	(1)	(1)	(1)	1.74	2.96	1.88	1.71	0.80	3.67	1.68	....
Austin, Tenn	(1)	3.55	1.65	5.10	3.45	3.60	5.96	3.27	3.25	2.10	3.47	(1)	....
Austin, Tex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	4.45	7.78	7.85	1.46	....
Bainbridge Island, Wash. T	0.25	0.06	1.80	3 80	5.71	5.05	4.40	3.58	0.97	2.50	0.55	2.70	30.82
Bandon, Oreg	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.96	0.53	1.22	....
Barnesville, Tex	(1)	(1)	1.00	7.25	0.02	5.75	0.81	4.87	1.12	7.00	11.10	(1)	....
Battle Creek, Mich	5.00	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Beech Grove, Tenn	3.35	4.42	3.85	4.61	4.87	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Bell Plain, Kans	6.20	3.20	2.55	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Belmont, N. H	5.05	1.87	2.83	4.85	2.56	2.85	4.09	4.41	4.87	4.10	(1)	1.43	....
Beloit, Wis	4.91	2.36	1.85	4.25	2.68	1.53	0.64	(1)	1.52	2.85	2.62	5.15	....
Belvidere, N. J	(1)	(1)	(1)	7.18	1.55	3.03	4.49	4.78	(1)	2.36	(1)	(1)	....
Benton, Tenn	1.83	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Bethel, Conn	4.81	2.86	3.00	5.28	1.86	3.56	4.55	5.10	3.30	1.90	3.05	3.90	42.12

Blooming Grove, Pa	6.10	1.50	1.90	3.50	1.80	1.70	2.20	2.81	(1)	1.40	3.30	3.50	....
Bolivar, Tenn	6.44	2.42	1.15	12.09	4.46	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Bowling Green, Ky	4.40	2.15	3.25	5.37	4.01	4.65	4.69	6.89	5.12	(1)	(1)	(1)	....
Brevard, N. C	0.10	0.93	4.74	1.95	4.53	5.00	6.72	10.07	14.53	5.02	2.21	12.94	68.74
Bristol, N. H	3.89	1.01	3.01	5.67	4.42	3.43	4.41	5.67	3.08	2.37	3.59	2.10	42.65
Brownsville, Tenn	4.80	1.08	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Brunswick, Ga	7.77	7.78	1.50	3.50	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Bunker Hill, Ill	5.26	1.37	0.10	6.30	4.07	2.46	1.51	4.11	3.79	2.33	4.27	3.96	39.53
Burlington, Vt	(1)	(1)	(1)	(1)	1.59	1.44	2.14	2.68	2.89	1.92	3.60	1.36	....
Caldwell, N. J	2.37	1.78	5.56	5.23	1.30	3.54	5.54	6.51	4.65	3.20	4.56	5.60	49.84
Canal Dover, Ohio	(1)	(1)	(1)	1.92	3.02	1.62	(1)	7.57	3.35	0.64	3.48	(1)	....
Careyville, Tenn	1.42	2.65	(1)	(1)	6.01	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Carson City, Nev	0.00	0.02	0.04	1.10	0.13	0.06	2.46	2.77	3.23	1.29	0.29	1.97	13.36
Catawissa, Pa	4.63	2.26	2.41	3.32	1.42	1.91	3.17	3.61	4.08	2.92	3.38	3.63	36.74
Cath Soph, S. A	4.96	3.80	0.80	0.80	1.00	4.04	(1)	(1)	(1)	(1)	(1)	(1)	....
Cedar Rapids, Iowa	5.08	1.03	1.34	4.06	1.22	1.03	0.71	1.41	2.47	2.12	3.08	3.38	26.93
Chambersburg, Pa	4.36	2.74	3.33	3.28	1.59	3.79	3.23	4.43	4.90	1.22	4.42	5.22	42.51
Chapel Hill, N. C	3.25	2.67	6.65	3.25	1.77	1.84	4.95	2.58	6.20	2.68	4.97	3.89	44.70
Charlestown, Mass	2.75	0.82	1.57	5.85	2.25	2.92	7.74	6.85	(1)	(1)	(1)	(1)	....
Charlotte, Vt	5.40	(1)	3.90	2.80	2.10	2.90	3.60	4.90	4.25	2.90	4.40	2.20	....
Chester, Minn	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.48	2.83	2.88	4.78	....
Chuckaluck, Tenn	(1)	(1)	3.45	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Cincinnati, Ohio (G. W. H.)	1.71	1.60	1.89	6.70	3.68	2.63	1.59	6.45	2.24	2.34	4.97	2.38	38.18
Clarksville, Tex	(1)	(1)	(1)	(1)	0.95	3.34	2.49	10.88	2.98	(1)	9.58	5.77	....
Clay Centre, Kans	5.21	(1)	1.82	11.42	0.95	0.62	0.71	1.11	(1)	(1)	(1)	3.28	....
Clear Creek, Nebr	(1)	5.16	(1)	4.09	0.23	0.54	0.50	0.89	3.44	(1)	2.26	3.66	....
Cleburne, Tex	2.02	(1)	0.85	6.50	1.00	5.75	0.88	4.12	6.25	3.64	5.03	10.09	....
Cleveland, Ohio	4.25	2.45	4.35	3.78	2.52	2.61	2.48	5.01	2.42	1.91	3.00	2.06	36.84
Clinton, Ind	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	4.30	10.64	....
Cockburn Harbor, British West Indies	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.26	(1)	(1)	....
Coldwater, Mich	(1)	(1)	1.70	3.50	(1)	1.00	(1)	(1)	(1)	(1)	(1)	(1)	....
College City, Cal	(1)	(1)	(1)	(1)	(1)	(1)	3.61	2.21	5.46	2.48	0.17	2.04	....
College Hill, Ohio	4.00	3.00	1.75	7.00	4.00	7.25	3.50	5.00	2.00	2.25	4.75	2.00	46.50
Collinsville, Ill	2.80	0.82	0.40	5.69	4.22	1.02	0.82	4.46	2.38	3.44	4.21	3.73	33.99
Comfort, Tex	4.10	0.00	0.98	1.64	0.66	2.18	(1)	(1)	(1)	(1)	(1)	(1)	....
Conception, Mo	(1)	(1)	(1)	(1)	1.21	0.48	0.75	0.48	2.41	2.44	3.84	3.02	....
Contoocook, N. H	(1)	1.00	1.95	(1)	1.85	2.10	4.15	5.00	4.20	(1)	2.35	1.05	....
Conway, Kans	(2)	(1)	2.76	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Cooperstown, N. Y	4.77	3.21	5.05	2.96	1.76	1.98	3.17	3.10	4.48	1.20	3.97	2.16	37.82
Cornish, Me	6.21	1.05	2.45	3.89	2.53	(1)	2.74	7.28	5.81	(1)	4.38	1.88	....
Covington, Tenn	3.34	(1)	1.20	3.04	2.60	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Cresco, Iowa	12.70	1.51	4.43	1.50	1.17	1.27	0.38	1.51	1.64	2.71	2.44	4.47	35.73
Crete, Nebr	(1)	(1)	(1)	(1)	(1)	0.89	0.41	0.41	1.20	3.02	1.79	1.89	....
Cumberland, Md	4.05	1.46	2.59	2.09	0.87	1.75	1.85	3.64	5.14	1.96	5.33	3.33	34.06
Curryville, Mo	(1)	(1)	1.84	5.88	1.72	0.91	0.92	3.54	2.89	2.69	(1)	(1)	....
Dannemora, N. Y	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.86	4.52	6.62	2.23	....
De Soto, Nebr	2.69	4.66	2.64	3.05	0.52	0.87	0.65	1.23	3.20	2.39	1.81	3.99	27.70
Distributing Reservoir, District Columbia	3.90	3.55	4.05	3.00	2.21	2.67	5.28	7.19	7.00	2.87	1.90	6.20	49.82
Dorset, Vt	(1)	(1)	(1)	(1)	1.54	1.95	2.61	5.17	4.98	2.49	3.96	2.66	....
Drifton, Pa	(1)	(1)	(1)	(1)	(1)	(1)	4.80	(1)	4.04	4.36	3.62	2.88	....

[1] No record.

[2] Inappreciable.

Monthly and annual precipitation reported by the voluntary observers of the Signal Service, &c.—Continued.

Stations.	1883.						1884.						Annual.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Dudley, Mass	2.34	0.92	0.56	4.77	1.56	1.26	(1)	(1)	(1)	(1)	2.98	(1)	....
Dyberry, Pa	5.02	0.95	2.45	3.68	2.27	2.83	3.75	5.59	2.93	3.00	3.86	1.27	38.10
Dyersburg, Tenn	6.45	4.00	(1)	5.22	1.99	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
East Harbor, British West Indies	(1)	0.00	3.96	1.81	4.94	1.51	1.56	1.04	(1)	(1)	5.91	4.53	....
Easton, Pa	4.86	2.36	4.27	5.22	(1)	3.36	4.73	4.77	4.97	2.88	2.28	2.87	....
East Portland, Oreg	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2.16	0.09	0.12	....
East Tawas, Mich	4.76	0.66	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Edgington, Ill	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2.25	(1)	(1)	(1)	(1)	....
Elk Falls, Kans	3.50	(1)	3.50	(1)	1.00	2.75	2.50	1.50	(1)	4.00	4.00	2.00	....
Elmira, Ill	4.19	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Embarrass, Wis	7.80	3.99	5.68	3.40	(1)	1.20	(1)	(1)	1.75	3.40	3.75	3.35	....
Emmitsburg, Md	(1)	(1)	3.90	4.44	2.07	3.94	(1)	(1)	(1)	2.14	7.19	0.40	....
Emporia, Kans	3.73	2.14	1.25	6.74	0.34	1.42	(1)	1.16	(1)	4.38	2.49	4.84	....
Eola, Oreg	0.00	0.00	0.78	3.11	5.29	5.63	3.46	5.54	2.49	3.09	0.42	1.67	31.48
Factoryville, N. Y	5.18	2.91	2.79	1.61	0.91	1.36	2.42	2.07	4.37	1.49	3.54	1.24	29.89
Fall Brook, Cal	(1)	(1)	(1)	(1)	(1)	(1)	3.56	15.39	10.90	(1)	(1)	(1)	....
Fall River, Mass	4.22	1.18	3.41	5.76	4.01	3.23	6.25	6.15	5.63	3.71	4.25	4.05	51.85
Fallsington, Pa	2.05	5.36	3.64	4.02	1.56	3.31	4.90	5.04	4.79	2.25	4.48	5.30	46.70
Fallston, Md	3.98	3.56	5.22	2.99	1.79	5.23	4.16	7.01	5.71	1.94	3.86	5.00	50.45
Fayetteville, Ark	(1)	(1)	(1)	(1)	(1)	3.98	2.70	3.05	3.32	5.03	4.14	4.77	....
Flat Creek, Tenn	4.20	3.36	3.05	5.06	4.99	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Florence Station, Tenn	2.58	4.80	1.30	6.82	3.11	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Flushing, N. Y	3.60	1.96	3.12	5.79	0.85	3.75	(1)	5.35	(1)	(1)	(1)	(1)	....
Forsyth, Ga	2.44	5.94	1.20	2.16	3.06	4.49	3.97	4.87	11.93	4.93	1.72	6.73	53.44
Fort Collins, Colo	(1)	1.78	0.10	1.27	0.00	0.93	(1)	(1)	1.15	3.92	4.84	(1)	....
Fort Madison, Iowa	7.90	1.73	0.90	3.96	2.55	1.00	(1)	(1)	4.70	2.60	4.95	4.23	....
Fort Madison, Wis	(1)	(1)	(1)	(1)	(1)	(1)	0.60	1.50	(1)	(1)	(1)	(1)	....
Fort Scott, Kans	4.55	1.00	0.22	7.78	0.76	1.88	1.45	2.33	2.44	7.53	9.08	3.38	42.80
Fort Wayne, Ind	3.42	1.96	2.57	5.19	3.67	1.05	2.50	4.01	2.78	1.51	4.02	2.05	34.67
Frankfort, Ky	3.32	0.54	2.24	6.17	4.35	5.42	5.06	3.56	(1)	3.32	5.19	2.80	....
Franklin, Pa	7.17	1.64	2.82	3.10	2.78	3.71	5.20	4.35	3.66	1.47	2.39	5.54	43.83
Franklin, Tenn	3.88	4.51	2.52	4.69	2.86	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Franklin, Wis	(1)	(1)	1.55	1.87	2.92	(1)	(1)	(1)	(1)	6.30	3.45	2.63	....
Freehold, N. J	2.65	2.52	5.22	5.77	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Fremont, Nebr	2.77	5.15	3.04	2.94	0.16	0.86	1.60	1.19	2.76	3.20	1.40	3.29	28.36
Friendship, N. Y	5.82	2.30	2.09	2.27	1.77	0.55	4.80	(1)	(1)	(1)	(1)	(1)	....
Gadsden, Tenn	6.99	3.86	0.27	4.88	3.61	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....

Gardiner, Me	3.49	0.82	3.11	4.48	2.95	3.67	5.40	7.29	5.40	6.53	4.00	1.22	47.88
Garrettsville, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	5.45	(1)	4.17	1.58	1.79	1.49	....
Genda Springs, Kans	(1)	3.70	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Genoa, Nebr	4.91	1.75	1.75	3.25	(1)	1.75	0.70	1.20	2.75	3.05	4.20	2.47	....
Germantown, Pa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	4.18	2.02	3.25	4.57	....
Golden, Colo	(1)	(1)	(1)	(1)	(1)	1.58	(1)	0.95	(1)	(1)	(1)	(1)	....
Grafton, N. H	4.81	1.44	3.42	4.98	2.81	3.05	(1)	(1)	5.05	(1)	(1)	(1)	....
Grampian Hills, Pa	6.05	1.66	2.24	2.89	2.55	3.75	3.29	4.69	5.10	3.00	2.86	9.85	47.93
Grand Coteau, La	1.97	0.42	0.97	2.69	5.71	4.76	9.83	2.50	10.20	5.62	14.08	2.50	61.25
Grand Junction, Colo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.74	(1)	(1)	....
Grand Rapids, Mich	(1)	(1)	2.10	(1)	(1)	0.81	2.51	(1)	2.96	1.22	3.28	5.28	....
Grand Turk Island, B. W. I	1.60	0.89	4.72	2.34	6.74	1.67	1.10	0.80	1.87	0.04	2.83	2.24	25.84
Grand View, Tenn	1.20	2.04	1.89	3.70	5.90	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Grassy Cove, Tenn	2.10	4.78	2.06	(1)	2.88	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Great Falls Reservoir, Md	1.56	1.53	1.91	2.16	0.56	1.67	5.10	5.75	5.84	1.98	3.19	5.80	37.05
Greeneville, Tenn	2.30	(1)	1.24	4.10	2.10	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Greenfield, Ind	3.15	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Green Springs, Ala	2.57	6.95	0.68	2.20	4.53	5.99	7.67	6.48	9.17	5.19	1.18	7.57	60.18
Grief, Tenn	1.81	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Griffin, Ind	3.65	(1)	1.73	7.88	5.96	5.12	1.63	(1)	2.84	2.73	(1)	(1)	....
Gunnison, Colo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.20	(2)	(1)	(1)	....
Guttenberg, Iowa	10.01	1.25	2.36	1.69	1.80	1.65	0.76	1.79	1.87	1.60	2.84	4.18	31.80
Hampton, Va	2.10	1.50	(1)	4.10	0.90	2.00	(1)	(1)	(1)	1.00	2.30	(1)	....
Hardison's Mills, Tenn	(1)	4.74	(1)	5.85	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Harrisville, Mich	(1)	0.76	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Hartford, Conn	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.36	1.73	....
Haverford College, Pa	(1)	(1)	(1)	(1)	1.70	(1)	(1)	5.88	4.92	2.47	3.33	5.72	....
Hector, N. Y	(1)	(1)	(1)	3.25	1.80	0.75	2.20	0.60	(1)	(2)	(1)	(1)	....
Helvetia, W. Va	7.84	1.73	3.09	5.21	2.05	5.15	6.00	5.24	4.96	2.70	4.51	5.69	54.17
Highlands, N. C	1.10	1.13	4.86	2.15	5.50	5.05	3.60	10.10	13.55	5.40	2.45	8.35	63.24
Hillsdale, Mich	5.25	1.77	1.82	4.22	3.66	1.87	1.11	4.36	2.48	1.70	4.13	5.39	37.76
Hiram, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	5.14	(1)	5.28	1.92	(1)	1.64	....
Holton, Kans	5.37	2.62	0.88	9.38	0.37	0.50	1.12	0.37	4.75	(1)	(1)	(1)	....
Honey Grove, Tex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.40	6.80	(1)	....
Howell, Tenn	1.73	3.27	3.32	3.98	4.96	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Hudson, Mich	(1)	(1)	(1)	(1)	4.00	2.13	2.36	3.42	(1)	(1)	4.58	3.61	....
Hulmeville, Pa	(1)	5.23	5.05	4.27	(1)	(1)	3.15	5.60	(1)	(1)	1.80	4.87	....
Humboldt, Iowa	6.12	2.26	2.22	1.98	1.45	1.70	0.20	1.19	3.04	3.27	2.62	3.47	29.52
Humphrey, N. Y	6.69	2.55	2.85	3.33	3.02	(1)	2.14	3.62	3.50	2.14	5.11	14.15	....
Hydesville, Cal	(1)	(1)	(1)	(1)	1.68	5.14	4.43	4.30	7.03	6.28	0.50	0.63	....
Inavale, Nebr	(1)	(1)	2.00	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Independence, Iowa	7.52	2.25	2.55	3.40	2.45	2.75	1.35	1.70	3.15	1.68	3.70	4.55	37.05
Independence, Kans	4.83	(2)	0.27	7.16	0.79	1.66	0.68	2.23	1.00	4.85	1.27	2.52	27.26
Indianola, Iowa	3.25	2.67	1.35	4.87	2.30	1.10	0.38	1.98	2.50	1.83	3.56	3.80	29.59
Ionia, Mich	7.44	0.07	3.00	3.28	3.76	1.27	2.24	3.37	3.51	2.16	2.81	2.93	35.84
Ithaca, N. Y	4.81	2.81	3.57	2.25	1.50	1.15	3.13	2.64	3.41	1.88	4.36	1.35	32.86
Jacksonburg, Ohio	2.50	2.55	(1)	6.50	3.50	2.75	2.60	7.65	3.10	2.55	5.40	1.65	....
Jeffersonville, Ind	(1)	(1)	(1)	(1)	5.35	5.02	(1)	3.81	3.60	2.30	4.94	4.06	....
Johanna Maria, S. A	6.71	3.29	0.84	0.84	7.30	2.65	(1)	(1)	(1)	(1)	5.68	(1)	....
Johnson, Nebr	4.45	0.80	1.25	4.15	0.50	0.26	0.50	1.01	3.71	2.30	(1)	(1)	....

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[2] Inappreciable.

Monthly and annual precipitation reported by the voluntary observers of the Signal Service, &c.—Continued.

Stations.	1883.						1884.						
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	Annual.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Johnsontown, Va	5.10	5.15	5.90	4.70	0.60	2.85	6.65	6.55	3.75	1.70	(1)	1.05	....
Johnstown, N. Y	3.51	1.32	4.68	1.76	3.56	2.64	(1)	(1)	(1)	(1)	(1)	(1)	....
Kalamazoo, Mich	4.14	0.42	(1)	2.97	(1)	(1)	(1)	4.82	(1)	2.11	3.96	4.86	....
Kansas City, Mo	(1)	(1)	(1)	(1)	(1)	(1)	1.20	(1)	(1)	(1)	(1)	(1)	....
Kew, B. W. I	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.78	12.06	7.64	....
Kiantone, N. Y	3.34	1.45	(1)	3.38	3.13	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Kingston Springs, Tenn	5.10	5.29	0.98	6.21	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Laconia, Ind	3.46	2.20	0.56	5.31	5.22	4.09	3.19	9.19	5.05	2.46	4.07	4.73	49.53
Lafayette, Ind	4.68	1.77	1.46	5.56	3.09	2.38	1.09	5.08	1.87	2.79	3.31	4.12	37.20
Lake Village, N. H	4.61	1.22	3.02	4.75	2.61	3.19	4.16	5.02	5.31	3.40	(1)	1.88	....
Lancaster, Wis	(1)	(1)	3.31	2.35	2.38	(1)	(1)	(1)	2.02	2.22	3.38	4.82	....
Lansing, Mich	10.12	0.21	3.37	3.64	4.08	0.93	1.92	3.24	3.71	2.12	4.34	3.09	40.86
Larchland, Ill	(1)	(1)	(1)	(1)	2.72	1.26	0.40	1.52	(1)	(1)	(1)	(1)	....
Lawrence, Kans	(2)	2.12	1.25	6.75	0.73	0.77	1.28	1.13	2.73	5.62	3.57	3.81	29.76
Lead Hill, Ark	11.60	4.79	1.52	18.11	5.77	4.52	2.05	10.93	3.95	3.89	5.93	3.57	76.63
Lebanon, Ohio	(1)	(1)	(1)	(1)	(1)	(1)	1.09	(1)	(1)	(1)	(1)	(1)	....
Leetsdale, Pa	4.62	3.11	3.74	2.73	2.24	3.40	5.33	5.11	3.97	1.28	2.88	5.29	43.70
Lenoir, N. C	3.70	6.00	6.50	4.60	3.40	1.60	3.80	4.90	9.40	4.50	2.40	10.30	61.10
Levi, Kans	4.76	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Limona, Fla	2.20	(1)	5.68	2.25	(2)	(1)	0.38	0.71	2.15	3.20	3.43	9.45	....
Lincoln, Nebr	1.83	11.25	0.83	4.25	(1)	0.25	(1)	(1)	(1)	(1)	(1)	(1)	....
Litchfield, Mich	4.96	3.08	2.50	3.28	3.30	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Livingston, Tenn	3.63	4.42	2.13	6.49	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Logan, Iowa	3.30	5.00	4.10	2.50	0.10	1.10	1.30	1.50	1.70	3.10	2.10	3.40	29.20
Logansport, Ind	5.87	2.61	3.14	5.29	3.46	2.09	1.80	4.43	1.50	2.19	3.42	4.25	42.56
Lunenburg, Vt	4.80	1.18	2.90	3.30	2.08	1.00	3.20	2.80	1.50	0.86	4.25	1.95	29.82
Madison, Wis	3.99	2.34	2.39	3.79	2.56	1.95	(1)	(1)	2.31	4.51	4.21	5.47	....
Manchester, Iowa	(1)	0.83	2.04	2.90	2.14	(1)	(1)	1.33	1.99	2.31	2.67	3.99	....
Manchester, Tenn	4.21	6.38	3.56	5.54	4.07	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Manhattan Kans, (B)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.52	2.08	3.45	5.18	(1)	....
Manhattan, Kans	4.15	2.61	1.71	7.31	0.20	0.45	0.31	0.58	(1)	(1)	(1)	4.12	....
Manistique, Mich	(1)	(1)	(1)	(1)	(1)	(1)	0.94	4.47	0.84	2.32	1.76	0.97	....
Manitowoc, Wis	13.68	1.08	2.36	1.38	2.41	0.96	(1)	(1)	1.59	4.30	2.43	5.16	....
Margaretta Township, Ohio	5.00	4.30	3.13	3.20	2.73	2.05	1.18	4.67	2.99	1.48	3.46	2.15	36.34
Marion, Va	1.96	1.11	2.66	2.45	2.15	2.52	4.42	5.82	6.70	3.37	2.04	3.97	39.17
Marquette, Nebr	2.20	3.68	0.35	3.23	(1)	0.87	7.75	5.87	4.68	3.13	5.36	1.58	....
Marshall, Mich	(1)	(1)	(1)	(1)	(1)	(1)	2.30	3.90	(1)	0.51	3.83	4.72	....

Maryville, Tenn	2.95	3.77	3.56	3.47	4.45	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Mattoon, Ill	4.64	1.78	0.80	9.40	4.73	2.26	0.90	5.44	2.75	4.16	5.00	6.87	48.78
Maud, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2.45	(1)	(1)	....
Mayport, Fla	3.08	5.78	5.86	3.17	0.64	0.44	3.53	3.62	3.06	1.88	4.41	7.23	42.65
Mazatlan, Mexico	4.55	7.82	7.29	3.41	(1)	1.06	3.88	(1)	(1)	(2)	1.50	2.01	....
McDonogh, Md	2.92	2.03	4.19	2.85	1.00	2.97	(1)	6.04	5.24	1.38	3.18	2.95	....
McKenzie, Tenn	4.77	1.93	0.34	5.18	2.87	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
McMinnville, Tenn	3.85	2.99	3.68	4.36	3.20	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
McNairy Station, Tenn	4.25	1.05	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Menand Station, near Albany, N. Y	6.78	2.09	3.17	3.29	0.97	0.99	0.95	1.75	4.83	1.67	2.89	1.96	31.34
Mendon, Mass	2.25	0.90	(1)	2.30	2.80	(1)	(1)	(1)	(1)	(1)	(1)	2.30	....
Mendon, Mich	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.97	5.39	2.19	....
Milan, Kans	(1)	4.55	1.25	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Milan, Tenn	5.56	4.26	0.70	4.72	4.45	3.85	4.45	7.96	4.49	5.55	4.98	3.84	54.81
Milledgeville, Ga	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.88	4.51	1.69	7.64	....
Millville Depot, Pa	(1)	(1)	(1)	(1)	(1)	(1)	7.40	(1)	(1)	(1)	(1)	(1)	....
Milton, Mass	2.78	0.76	1.73	6.30	2.44	2.38	5.72	5.46	4.70	4.21	3.01	4.22	43.71
Minneapolis, Minn	4.43	0.47	1.99	1.17	0.68	1.82	0.73	0.22	0.95	1.73	2.99	4.18	21.36
Monticello, Iowa	10.93	1.22	1.65	4.43	1.35	1.27	0.61	1.15	3.90	1.86	3.74	2.82	34.93
Moorestown, N. J	1.57	4.07	4.77	5.22	1.48	3.25	4.36	5.33	4.64	1.65	3.29	3.52	43.15
Morrison, Ill	5.17	(1)	(1)	(1)	6.30	(1)	(1)	(1)	(1)	(1)	2.84	4.83	....
Morriston, Dak	6.30	2.80	1.90	(1)	(1)	(1)	(1)	(1)	1.80	3.60	4.20	3.10	....
Mottville, Mich	(1)	(1)	1.50	2.88	4.75	1.78	1.12	3.34	3.58	1.58	27.16	(1)	....
Mountainville, N. Y	5.39	2.91	2.27	4.58	1.14	2.72	5.84	4.49	3.96	2.45	(1)	3.73	....
Mount Forest, Canada	(1)	(1)	2.22	(1)	(1)	(1)	(1)	(1)	(1)	0.94	(1)	4.88	....
Mount Ida, Ark	3.10	5.80	1.60	7.85	2.15	5.05	2.30	9.80	4.90	8.30	10.25	2.25	63.35
Murfreesborough, Tenn	2.84	(1)	(1)	3.56	3.09	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Muscatine, Iowa	4.31	1.45	1.19	6.23	3.45	1.45	1.05	1.40	4.28	2.08	5.57	4.03	36.49
Nebraska City, Nebr	3.97	(1)	(1)	(1)	0.64	0.40	0.46	0.62	2.38	(1)	(1)	(1)	....
Neillsville, Wis	8.40	5.10	(1)	1.50	1.20	0.80	(1)	(1)	0.79	1.80	3.30	3.41	....
Nephi, Utah	1.40	0.70	0.15	2.25	1.70	2.00	0.86	3.70	2.15	6.30	2.70	0.50	24.41
Newark, N. J	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2.92	(1)	(1)	....
New Bedford, Mass	6.92	0.82	2.82	6.31	3.24	3.79	4.70	5.67	(1)	(1)	3.37	(1)	....
New Market, N. H	7.29	(1)	(1)	(1)	2.97	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Newport, Fla	(1)	(1)	(1)	0.00	0.99	1.14	4.77	4.25	5.92	4.17	(1)	(1)	....
Newport, Vt	(1)	2.65	4.48	3.54	2.02	2.21	3.55	4.03	3.61	2.56	6.79	4.33	....
New Tacoma, Wash. T	(1)	(1)	(1)	(1)	(1)	(1)	4.93	(1)	1.27	(1)	(1)	2.81	....
New Ulm, Tex	1.22	2.19	7.71	3.51	5.32	2.61	3.43	2.58	4.86	4.68	15.25	2.82	56.18
Nora Springs, Iowa	3.00	1.20	3.80	0.60	1.20	1.50	(1)	(1)	(1)	(1)	(1)	(1)	....
Northfield, Minn	6.73	2.72	0.92	1.08	1.00	1.61	0.75	1.82	1.17	2.02	2.56	5.16	27.54
North Lewisburg, Ohio	2.80	1.50	2.65	5.00	4.40	3.30	1.90	4.55	3.10	1.75	2.05	1.90	34.90
Northport, Mich	7.60	4.00	3.35	6.95	7.85	2.92	4.00	2.15	4.58	16.50	19.85	5.60	85.35
North Volney, N. Y	3.95	1.50	2.55	2.35	4.00	2.85	3.70	3.25	3.90	0.60	(1)	1,15	....
Oakland Cal	0.00	(2)	1.00	1.03	0.90	(1)	3.81	5.25	3.59	5.79	0.55	3.03	....
Oakwood, Cal	0.00	0.00	0.00	2.96	0.00	3.32	(1)	(1)	(1)	(1)	(1)	(1)	....
Orono, Me	6.90	0.53	2.23	4.97	3.75	2.99	4.44	6.85	4.37	3.38	5.42	1.87	47.20
Oskaloosa, Iowa	(1)	(1)	(1)	(1)	(1)	4.50	0.72	(1)	(1)	(1)	(1)	(1)	....
Ottumwa, Iowa	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.11	3.45	3.51	4.00	4.91	....
Palermo, N. Y	3.17	1.29	1.83	1.80	3.57	2.63	5.05	3.60	3.28	0.68	1.48	1.27	29.60
Parimaribo, Dutch Guiana, South America	10.73	2.76	2.83	1.54	6.14	4.32	6.50	(1)	(1)	(1)	18.83	8.45	....

[1] No record.

[2] Inappreciable.

Monthly and annual precipitation reported by the voluntary observers of the Signal Service, &c.—Continued.

Stations.	1883.						1884.						Annual.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Paris, Tenn	4.90	2.00	0.73	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Paterson, N. J	2.92	1.30	5.41	4.38	0.97	2.89	5.16	5.74	3.20	2.40	4.47	(1)	....
Penn Yan, N. Y	2.83	4.30	2.27	2.87	1.50	1.63	3.28	2.15	2.68	1.33	2.73	2.32	28.89
Peoria, Ill	3.57	0.57	2.98	3.57	4.19	1.87	0.70	3.18	2.17	2.62	5.50	3.87	34.24
Peru, Nebr	2.44	3.50	3.25	5.46	0.50	(1)	0.40	(1)	3.30	(1)	1.15	5.84	....
Phillipsburg, N. J	4.92	1.44	3.99	4.83	1.28	1.81	3.88	4.38	3.47	2.07	(1)	3.73	....
Pierce City, Mo	9.30	4.80	0.20	3.90	2.80	2.30	0.90	4.70	1.30	5.60	4.10	4.20	49.10
Plant Waterloo, South America	10.60	3.97	0.42	0.42	4.70	7.15	(1)	(1)	(1)	(1)	(1)	(1)	....
Pleasant Grove, Wash	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.62	1.26	0.17	0.47	....
Point Lobos, Cal	0.00	0.00	0.22	0.43	0.61	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Point Pleasant, La	1.79	(2)	1.06	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Polo, Ill	5.04	0.97	1.61	5.42	4.08	1.56	1.45	2.43	2.17	(1)	2.77	4.30	....
Port Jervis, N. Y	6.47	1.32	2.53	4.09	1.12	1.81	3.62	4.29	4.45	3.29	3.75	2.12	38.86
Portsmouth, Ohio	4.13	0.82	1.46	6.47	3.08	5.86	5.34	6.11	5.55	3.90	4.80	3.47	50.58
Poway, Cal	0.00	(2)	0.00	1.59	0.00	2.40	1.59	(1)	6.96	4.81	2.26	0.44	....
Prairie du Chien, Wis	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	2.42	3.10	....
Pretty Prairie, Kans	4.12	3.97	3.55	6.83	0.50	0.90	0.12	0.89	1.98	3.49	(1)	(1)	....
Princeton, Cal	0.00	0.00	0.58	0.64	0.10	0.14	4.03	2.35	5.06	2.71	0.05	2.12	17.78
Princeton, Mass	2.48	0.51	1.42	5.92	1.73	3.01	7.56	7.44	6.91	5.75	3.29	3.45	49.47
Princeton, N. J	0.00	0.00	0.68	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Providence, R. I	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	4.25	2.94	4.81	....
Pueblo, Colo	(1)	(1)	(1)	(1)	0.00	0.54	0.57	0.72	0.05	3.58	1.60	2.85	....
Puerto de Luna, N. Mex	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.05	(1)	1.20	1.07	....
Pulaski, Tenn	(1)	(1)	1.82	3.92	4.80	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Quaker City, Ohio	7.23	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Quakertown, Pa	1.05	2.25	3.72	4.10	1.47	2.15	2.96	4.74	4.99	2.70	3.53	6.54	40.20
Quitman, Ga	(1)	(1)	(1)	(1)	(1)	(1)	6.00	(1)	5.05	(1)	(1)	(1)	....
Raleigh, N. C	(1)	(1)	(1)	(1)	(1)	(1)	5.70	(1)	(1)	(1)	1.20	(1)	....
Randolph, Vt	3.11	1.44	2.90	1.85	1.79	(1)	(1)	1.55	4.12	(1)	(1)	(1)	....
Rapid City, Dak	(1)	(1)	(1)	(1)	0.51	1.60	1.20	0.94	2.40	(1)	(1)	(1)	....
Readington, N. J	(1)	6.00	5.30	4.30	1.50	(1)	(1)	(1)	(1)	(1)	3.40	3.30	....
Receiving Reservoir, D. C	3.43	2.00	4.12	3.51	1.05	2.29	5.60	6.82	6.69	2.67	2.70	3.12	49.00
Red Willow, Nebr	2.67	3.65	3.15	3.92	0.02	1.53	0.83	(1)	1.10	1.47	5.34	2.28	....
Richardton, Dak	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.90	1.00	4.02	1.40	6.00	....
Richmond, Ky	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.63	2.48	3.21	....
Riddleton, Tenn	3.65	6.28	1.86	5.83	6.00	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Riley, Ill	2.94	1.17	2.04	4.28	4.08	1.67	0.80	2.20	1.51	2.85	2.56	4.22	30.27

Ripon, Wis	12.59	1.41	2.48	0.80	2.54	1.09	(1)	(1)	2.15	2.26	0.75	2.98	....
Rising Sun, Ind	2.45	2.55	1.50	4.45	(1)	3.85	2.65	5.35	(1)	(1)	(1)	2.60	....
Rockford, Ill	8.69	1.50	4.92	6.66	3.87	1.58	1.42	1.91	2.88	3.45	8.48	6.16	41.47
Rogersville, Tenn	3.15	1.61	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Rolling Green, Kans	4.40	2.15	3.25	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Rowe, Mass	5.80	2.15	8.05	6.25	1.82	2.60	3.27	5.10	4.65	1.85	3.15	1.60	40.79
Ruggles, Ohio	3.65	1.40	7.70	2.05	1.80	(1)	2.20	3.75	(1)	0.85	2.60	1.45	....
Sacramento, Cal	0.00	0.00	(1)	(1)	(1)	(1)	8.18	4.10	7.63	4.80	0.09	1.57	....
Sailors' Rest, Tenn	2.66	1.25	(1)	2.42	4.83	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Saint George's, Del	(1)	4.55	4.50	(1)	(1)	3.45	8.45	9.65	12.20	(1)	(1)	(1)	....
Saint Louis, Mo	(1)	(1)	0.00	(1)	(1)	(1)	(1)	(1)	8.63	8.92	2.49	(1)	....
Salem, Ind	(1)	(1)	2.06	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Salem, N. J	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.06	1.32	2.49	....
Salina, Kans	4.05	1.01	1.04	8.08	0.04	0.09	0.02	0.05	1.09	2.09	2.07	5.09	24.72
Salinas City, Cal	(1)	(1)	0.19	1.19	0.25	0.90	1.70	4.49	5.09	3.05	0.72	2.66	....
Salt Cay, B. W. I	(1)	0.83	1.45	1.57	4.88	2.38	0.83	0.52	(1)	0.24	1.01	1.23	....
Sandwich, Ill	(1)	(1)	(1)	(1)	(1)	(1)	(1)	3.48	2.08	(1)	2.10	8.24	....
Sandy Springs, Md	2.60	4.14	4.82	3.77	1.08	2.64	8.68	6.19	5.96	1.67	2.98	4.35	43.88
Santa Barbara, Cal	(1)	(1)	0.60	1.85	0.00	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Savannah, Tenn	4.31	2.08	1.79	7.27	4.22	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Sherlock, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.45	0.38	7.94	8.79	....
Smithville, Tenn	2.60	3.80	1.20	4.00	5.10	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Snowville, Va	(1)	(1)	(1)	2.80	....	(1)	(1)	(1)	(1)	(1)	2.20	7.80	......
Somerset, Mass	8.81	0.83	2.81	4.84	8.20	8.05	6.00	4.12	4.91	4.83	2.93	8.56	44.39
Somerville, N. J	2.19	3.85	4.81	4.22	0.99	4.24	4.68	4.68	8.73	2.12	2.88	6.20	44.00
South Haven, Kans	7.87	(1)	2.20	....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Southington, Conn	2.68	1.66	2.73	4.47	1.11	2.70	4.18	4.76	8.49	8.05	2.46	2.06	....
South Orange, N. J	2.23	2.50	4.80	5.00	0.96	4.06	6.00	4.85	4.28	2.35	8.30	6.02	46.84
Spiceland, Ind	3.80	6.35	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	4.23	2.11	....
Springfield, Ark	(1)	(1)	(1)	(1)	(1)	8.42	4.15	10.15	(1)	4.39	(1)	1.14	....
Springfield, Mo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	5.48	2.67	....
Stateburg, S. C	1.88	2.41	6.11	3.88	2.22	1.26	4.43	3.29	3.53	3.66	3.97	4.91	41.00
State College, Pa	(1)	2.18	2.31	2.18	1.49	2.12	3.27	3.56	4.29	1.73	2.37	1.07	....
Statesville, N. C	(1)	(1)	(1)	(1)	(1)	(1)	6.06	(1)	12.03	4.40	2.63	7.99	....
Station Albina, South America	8.96	2.76	1.85	1.85	(1)	(1)	(1)	(1)	(1)	(1)	7.18	(1)	....
Stella, Nebr	(1)	(1)	(1)	(1)	(1)	0.85	0.28	0.44	0.00	(1)	(1)	(1)	....
Stockham, Nebr	8.25	7.13	1.75	4.25	0.00	0.85	0.80	(1)	1.00	5.00	4.10	1.10	....
Strafford, Vt	6.00	2.40	8.60	2.60	1.70	2.50	8.00	4.70	5.20	2.10	4.55	1.60	39.96
Sunman, Ind	(1)	4.95	2.95	5.75	8.77	4.94	2.00	7.48	2.11	2.40	8.82	2.89	....
Sussex, Wis	8.78	0.48	2.69	2.87	1.92	1.26	(1)	(1)	1.91	3.61	3.11	3.70	....
Swanwick, Ill	5.24	3.23	0.06	8.58	5.90	2.92	1.15	6.18	2.75	2.12	4.84	5.66	48.57
Swarts Creek, Mich	(1)	(1)	(1)	(1)	(1)	0.61	1.09	8.00	3.99	2.07	8.17	8.50	....
Sycamore, Ill	(1)	(1)	(1)	(1)	(1)	(1)	0.71	2.15	2.02	4.06	8.18	4.58	....
Table Rock, Nebr	2.84	1.40	0.71	4.28	0.40	0.24	(1)	(1)	(1)	(1)	(1)	(1)	....
Tamaqua, Pa	(1)	(1)	(1)	(1)	(1)	(1)	3.73	(1)	(1)	3.29	4.35	3.74	....
Taunton, Mass	2.75	0.88	2.80	4.84	(1)	1.31	4.85	4.84	5.83	4.12	2.73	4.04	....
Terre Haute, Ind (H.)	(1)	(1)	0.78	10.98	6.58	2.86	0.89	5.12	2.20	3.68	3.82	5.76	....
The Dalles, Oreg	0.00	00.0	0.01	0.46	2.19	1.77	(1)	(1)	(1)	(1)	(1)	(1)	....
Thornville, Mich	6.52	0.86	8.12	3.94	1.84	1.91	1.77	4.08	3.37	1.97	(1)	3.76	....
Topeka, Kans	6.52	4.17	0.88	6.14	0.81	(1)	0.65	2.88	3.19	4.38	3.51	5.18	....
Traverse City, Mich	6.53	1.84	2.76	3.42	4.71	2.78	8.19	8.07	2.29	2.12	2.11	2.79	37.60

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(1) No record.

(2) Inappreciable.

Monthly and annual precipitation reported by the voluntary observers of the Signal Service, &c.—Continued.

Stations.	1883.						1884.						Annual.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Trenton, Tenn	(1)	4.57	0.96	12.83	5.80	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Troy, Pa	(1)	(1)	(1)	(1)	(1)	(1)	4.32	4.25	3.85	2.88	4.19	2.63	....
Tucson, Ariz	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.23	0.23	....
Utica, Nebr	2.77	1.64	(1)	3.12	(1)	0.40	(1)	(1)	(1)	(1)	(1)	(1)	....
Variety Mills, Va	1.68	2.29	4.98	3.79	1.05	2.22	4.49	7.12	8.78	2.21	2.94	5.33	46.88
Vermilion, Dak	(1)	(1)	1.30	1.57	(1)	(1)	(1)	(1)	1.50	3.42	1.68	(1)	....
Vevay, Ind	4.83	2.27	4.27	7.67	5.73	5.85	3.02	10.23	1.37	1.99	5.17	4.20	56.60
Vineland, N. J. (F. T. Hill)	(1)	(1)	(1)	5.89	2.26	4.45	5.26	(1)	(1)	3.33	(1)	1.97	....
Vineland, N. J	3.52	2.00	4.98	7.06	1.87	5.16	11.56	6.78	6.59	(1)	1.99	(1)	....
Virginia A. & M. College, Va	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.58	5.24	....
Voluntown, Conn	(1)	1.05	2.30	5.70	2.47	3.18	5.80	6.30	4.25	2.45	2.90	5.20	....
Wabash, Ind	5.09	2.11	3.37	7.37	3.45	2.37	1.29	4.48	2.05	2.34	4.69	2.23	40.84
Washington, D. C	3.80	2.80	3.84	2.57	1.02	2.79	5.02	6.15	6.50	1.59	2.34	6.17	44.59
Wausau, Wis	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.20	2.41	1.91	4.03	....
Wauseon, Ohio	6.44	1.67	2.96	4.37	2.88	2.41	1.93	5.02	2.78	1.42	3.95	2.79	38.62
Waverly, Tenn	5.08	3.07	2.00	5.04	3.03	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Weaverville, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	5.10	(1)	(1)	(1)	....
Webster, Dak	2.32	1.84	3.78	4.85	0.08	4.72	1.42	7.46	5.30	3.73	9.19	8.01	52.70
Weir's Bridge, N. H	5.87	1.62	3.34	4.69	2.59	3.11	2.80	4.87	4.68	3.33	(1)	0.80	....
Weldon, N. C	2.91	2.94	7.75	3.59	0.87	2.23	5.33	3.36	7.06	1.99	2.91	3.14	44.08
Wellington, Kans	6.64	3.51	4.65	4.94	0.18	1.40	0.46	0.71	1.05	3.67	4.79	4.21	36.21
Wellsborough, Pa	10.24	2.86	3.27	2.42	2.14	0.37	3.09	10.18	(1)	2.31	9.36	4.88	....
Wellsburg, W. Va	4.00	2.40	7.27	2.02	2.42	2.84	3.60	5.20	3.61	0.90	3.90	1.70	40.06
Wentworth, Dak	(1)	(1)	1.81	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Westborough, Mass	2.60	0.93	1.38	5.54	(1)	3.65	5.25	7.12	5.11	4.29	3.66	3.75	....
West Chester, Pa	2.54	5.20	3.64	4.45	2.30	4.63	7.32	7.29	6.09	2.94	3.64	7.52	57.56
Westerville, Ohio	2.85	1.32	2.46	5.22	3.77	3.49	1.97	4.62	3.32	1.75	3.53	3.03	37.33
West Leavenworth, Kans	(1)	(1)	(1)	(1)	1.60	(1)	(1)	(1)	6.30	(1)	15.70	(1)	....
Westmoreland, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	4.20	2.88	5.50	....
White Bluff, Tenn	5.80	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
White Plains, N. Y	2.30	1.90	4.70	4.65	1.60	2.45	4.30	4.35	3.31	2.70	3.20	6.40	41.86
Wilkes Barre, Pa	7.08	0.88	3.19	3.12	1.45	1.99	3.41	3.48	4.95	2.46	3.97	2.68	....
Williamstown, Mass	4.59	2.92	2.64	3.32	1.65	(1)	1.75	3.76	3.89	1.83	2.51	1.65	....
Wolfborough, N. H	6.92	1.68	2.42	4.24	2.42	3.27	4.7	5.64	5.48	3.52	(1)	1.69	....
Woodstock, Md	4.26	2.75	4.74	2.66	0.65	3.23	6.12	6.69	7.65	1.63	3.20	2.74	46.32

Woodstock, N. H	6.30	2.22	2.93	4.55	2.29	2.77	2.69	5.32	5.72	2.26	(1)	1.48	....
Woodstock, Vt	5.56	1.04	2.83	8.89	2.15	2.38	3.22	3.62	4.48	2.31	8.00	1.88	35.86
Worcester, Mass	(1)	0.51	1.54	4.32	1.49	2.48	5.04	6.23	2.37	4.20	2.50	4.06	....
Wyandotte, Kans	(1)	(1)	(1)	(1)	(1)	(1)	(1)	8.51	2.66	3.36	8.78	4.71	....
Wytheville, Va	0 89	(1)	(1)	4.13	2.54	(1)	8.92	5.83	5.04	2.65	8.41	5.92	....
Yates Centre, Kans	8.12	1.27	0.44	3.34	0.48	1.42	0.48	1.94	1.09	8.86	1.35	2.46	....

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[1] No record.

APPENDIX 55.

Monthly and annual precipitation at military post hospitals, from July, 1883, to June, 1884, inclusive.

Stations.	1883.						1884.						Annual.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Abraham Lincoln, Fort, Dak	2.00	1.22	0.20	2.88	0.30	2.00	1.00	0.68	0.72	1.88	2.00	5.16	20.04
Alcatraz Island, Cal	0.00	0.00	0.24	1.73	1.10	0.70	3.10	3.96	6.02	7.34	0.20	2.11	26.50
Angel Island, Cal	0.00	0.00	0.25	1.57	1.58	0.91	4.05	6.85	7.82	6.67	0.12	2.66	32.48
Apache, Fort, Ariz	5.46	4.26	0.60	1.39	0.02	3.48	0.68	3.43	4.44	1.67	1.31	2.35	29.09
Assinaboine, Fort, Mont	0.24	2.59	0.65	0.98	3.11	0.21	0.16	0.42	0.53	0.25	3.05	3.95	16.14
Barrancas, Fort, Fla	(1)	(1)	(1)	(1)	(1)	(1)	7.06	3.40	6.25	6.95	9.75	11.99	....
Benicia Barracks, Cal	0.00	0.00	0.68	0.96	0.53	0.78	3.61	4.57	7.93	4.16	0.10	2.47	25.79
Bidwell, Fort, Cal	(2)	0.00	(2)	1.18	1.14	1.06	1.14	2.96	6.57	0.68	0.40	4.29	19.42
Bowie, Fort, Ariz	2.21	1.73	0.72	0.50	0.39	1.12	3.14	4.96	2.63	(2)	0.10	0.12	17.62
Brady, Fort, Mich	6.02	2.11	1.93	3.21	3.04	1.63	0.73	1.22	0.69	1.27	2.73	1.48	26.01
Bridger, Fort, Wyo	0.11	0.50	0.50	1.30	0.76	0.90	0.36	0.48	0.38	0.37	1.00	0.10	6.76
Buford, Fort, Dak	1.36	1.96	0.29	2.02	1.75	0.76	0.11	0.12	0.10	0.82	0.14	0.24	9.67
Canby, Fort, Wash. T	0.00	(2)	3.15	5.65	8.34	5.87	6.45	5.20	2.18	2.98	1.30	2.16	43.28
Columbus, Fort, N. Y. Harbor	3.38	2.05	3.16	4.10	1.37	4.33	5.48	5.05	4.52	(1)	4.12	5.45	....
Concho, Fort, Tex	3.89	2.20	3.89	6.76	0.50	0.60	0.40	0.80	0.50	4.60	8.83	1.77	34.74
David's Island, N. Y	1.93	1.90	3.14	4.39	1.20	1.20	3.59	3.00	3.29	1.35	3.42	3.78	32.19
Davis, Fort, Tex	3.62	3.07	1.49	0.42	0.64	0.81	0.48	0.00	0.28	1.63	1.08	2.78	16.30
Ellis, Fort, Mont	0.41	2.01	1.05	2.07	0.88	1.12	1.25	0.75	0.82	1.31	2.98	3.50	18.15
Fred. Steele, Fort, Wyo	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	1.30	0.96	2.92	0.30	....
Garland, Fort, Colo	2.50	3.40	0.80	0.28	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Gaston, Fort, Cal	0.00	0.06	2.87	3.86	2.19	9.10	5.49	5.16	7.80	6.89	1.30	1.50	46.22
Grant, Fort, Ariz	2.90	3.07	0.42	1.21	0.11	1.44	1.12	4.62	3.87	0.47	0.81	1.20	21.24
Hale, Fort, Dak	3.32	2.88	0.76	2.81	0.00	0.40	0.16	0.84	1.56	2.07	0.46	(1)	....
Hamilton, Fort, N. Y. Harbor	2.44	2.78	3.60	5.68	1.95	3.83	7.53	6.06	4.23	3.16	4.49	4.75	50.69
Jefferson Barracks, Mo	4.73	3.87	0.00	6.37	3.30	0.39	0.55	2.10	3.00	1.90	2.64	2.60	31.45
Keogh, Fort, Mont	0.66	1.26	0.00	0.84	0.20	0.00	(1)	0.87	0.30	1.20	(1)	(1)	....
Klamath, Fort, Oreg	(2)	0.10	0.18	0.67	0.63	2.92	2.68	1.88	3.02	1.76	0.74	3.14	17.72
Lapwai, Fort, Idaho	0.00	0.14	0.21	1.96	1.78	2.17	2.80	4.06	1.80	1.12	1.30	3.86	21.20
Leavenworth, Fort, Kans	2.25	1.97	1.57	8.31	2.02	0.65	0.97	1.42	3.70	4.74	4.79	3.33	35.72
Lewis, Fort, Colo	2.89	0.91	0.66	2.40	(2)	2.44	0.25	3.41	4.24	(1)	1.08	1.24	....
Lowell, Fort, Ariz	(1)	(1)	(1)	0.78	0.48	3.18	4.74	5.23	2.90	0.08	(1)	(1)	....
Lyon, Fort, Colo	(1)	0.24	0.98	0.50	0.30	1.20	(1)	(1)	0.49	1.10	3.11	1.60	....
Madison Barracks, N. Y	3.93	2.10	2.83	2.35	1.87	2.43	2.36	2.37	2.45	0.54	3.25	0.99	27.47

Maginnis, Fort, Mont	0.28	0.37	0.66	4.06	1.12	0.39	1.47	0.69	0.56	0.62	0.76	1.21	12.19
Mason, Fort, Cal	0.00	0.00	0.64	1.12	(2)	1.38	3.90	3.34	5.94	4.84	(2)	2.00	22.68
McDermitt, Fort, Nev	(2)	1.36	0.24	6.66	1.06	1.22	6.72	4.80	4.88	4.52	3.20	4.44	39.10
McDowell, Fort, Ariz	1.12	1.76	0.32	0.30	0.06	4.22	0.14	4.37	3.47	0.06	0.45	0.09	16.86
McHenry, Fort, Md	2.65	4.00	5.34	1.54	0.83	4.98	5.38	5.89	5.42	1.86	2.49	3.04	43.42
Meade, Fort, Dak	2.80	0.18	1.60	0.67	0.05	0.72	0.37	0.33	2.26	5.04	3.58	0.48	23.08
Mitchell, Camp, Ga	(1)	2.70	0.88	2.48	4.66	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Mojave, Fort, Ariz	0.15	0.00	0.42	0.10	(2)	1.23	0.00	1.90	(1)	0.67	0.29	0.00	....
Monroe, Fort, Va	3.02	0.60	2.44	4.10	0.78	1.50	5.10	3.56	6.53	1.42	1.58	3.99	34.57
Mount Vernon Barracks, Ala	3.27	1.67	0.07	0.57	2.64	3.31	5.45	4.76	14.68	5.61	5.79	7.75	55.57
Niagara, Fort, N. Y	2.66	2.45	1.97	1.73	1.49	1.89	2.25	2.75	2.27	0.71	(1)	1.16	....
Niobrara, Fort, Nebr	2.34	0.82	2.16	2.90	0.04	1.02	0.28	0.34	1.98	(1)	(1)	(1)	....
Pembina, Fort, Dak	1.11	2.63	0.58	1.75	0.63	1.72	0.10	0.60	1.81	1.86	1.25	(1)	....
Plattsburg Barracks, N. Y	3.40	1.17	2.49	1.81	1.75	0.96	1.88	1.84	3.49	1.08	2.29	1.60	23.76
Preble, Fort, Me	3.86	0.40	1.92	5.17	3.02	2.82	3.60	4.24	3.16	2.14	(1)	(1)	....
Presidio, Cal	0.00	0.00	0.34	0.74	1.64	0.58	3.64	4.12	5.86	5.10	0.14	1.93	24.09
Randall, Fort, Dak	4.80	1.90	1.50	2.20	(1)	3.51	0.58	0.47	2.98	2.80	1.70	4.31	....
Reno, Fort, Ind. T	3.59	5.53	2.10	6.82	0.18	1.20	0.46	0.18	(1)	3.64	6.79	4.44	....
Robinson, Fort, Nebr	0.18	2.05	0.00	1.22	0.50	1.97	0.40	0.50	(1)	1.49	2.85	1.53	....
Saint Augustine, Fla	5.81	1.84	3.51	2.59	0.23	0.26	1.67	3.42	1.92	2.14	1.73	7.43	32.55
Shaw, Fort, Mont	0.08	0.97	0.06	2.22	0.43	0.96	0.83	0.82	0.41	0.69	0.74	0.97	9.08
Sisseton, Fort, Dak	2.22	1.92	0.00	2.07	0.00	0.35	0.35	0.82	0.82	1.26	3.00	1.32	14.13
Snelling, Fort, Minn	4.14	1.12	1.90	1.40	0.76	1.09	(1)	1.34	0.86	1.88	2.42	5.42	....
Spokane, Fort, Wash. T	0.00	(1)	0.06	1.60	1.20	1.50	0.90	1.02	0.42	1.30	(2)	1.52	....
Sully, Fort, Dak	3.28	3.08	0.08	1.24	0.00	0.86	0.29	0.47	0.87	2.28	2.04	3.00	17.49
Totten, Fort, Dak	1.84	1.46	0.14	4.19	0.73	2.84	0.68	0.54	0.98	2.90	0.98	1.89	19.08
Townsend, Fort, Wash. T	0.60	0.30	0.55	2.47	3.01	2.34	2.36	1.77	0.11	2.10	0.97	2.23	18.81
Union, Fort, N. Mex	2.80	4.81	2.96	1.94	0.00	1.12	0.18	0.54	0.28	0.28	4.98	3.06	22.90
Verde, Fort, Ariz	3.35	1.18	0.00	0.45	0.00	4.30	0.39	3.59	3.60	1.43	0.72	0.23	19.20
Warren, Fort, Mass	1.46	0.54	1.12	1.92	0.22	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Washakie, Fort, Wyo	(1)	0.20	0.80	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
West Point, N. Y	3.60	4.50	3.40	5.30	(1)	(1)	(1)	(1)	(1)	2.30	3.80	2.50	....
Wingate, Fort, N. Mex	4.64	2.74	0.46	1.14	0.00	1.44	(1)	0.50	(1)	(2)	1.04	1.18	....
Yates, Fort, Dak	0.90	0.09	(1)	0.42	0.00	0.43	0.23	0.35	0.29	1.50	0.94	5.00	....

[1] No record.

[2] Rainfall inappreciable.

APPENDIX 56.

Monthly and annual precipitation at stations on the Central Pacific and Southern Pacific Railroads, and connecting branches, for the year ending June 30, 1884.

[Copied from the records on file at the office of the chief engineer Central Pacific Railroad, by the observer at San Francisco, Cal.]

Stations.	1883.						1884.						Annual.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Alta, Cal	0.00	0.00	0.60	1.60	2.05	3.10	3.50	3.60	(2)	5.20	0.50	3.00	....
Anaheim, Cal	0.00	(2)	0.00	1.12	0.00	1.40	2.80	10.58	6.70	1.75	0.54	1.28	26.17
Antioch, Cal	0.00	0.00	0.13	0.70	0.55	0.20	3.50	3.64	5.73	2.62	0.00	1.15	18.22
Auburn, Cal	0.00	0.00	1.70	2.51	1.00	2.52	5.83	7.63	10.17	8.02	0.85	1.33	40.96
Battle Mountain, Nev	(2)	(2)	0.00	0.85	0.70	0.40	0.70	0.23	1.04	1.54	1.29	2.18	8.93
Benson, Ariz	2.97	2.78	0.10	0.21	0.07	0.50	0.20	0.63	1.20	(2)	0.00	(1)	....
Beowawe, Nev	0.00	0.00	0.00	1.14	0.60	0.82	0.75	1.60	0.96	0.77	1.29	2.25	10.18
Bishop's Creek, Nev	(1)	(1)	(1)	(1)	(1)	0.38	(1)	(1)	0.94	0.05	0.00	0.00	....
Blue Creek, Utah	0.30	0.40	0.50	0.70	0.94	0.00	1.14	0.70	(1)	2.16	1.01	0.52	....
Boca, Cal	0.00	0.00	(1)	2.45	0.50	0.60	4.60	6.30	5.10	1.90	0.30	1.40	....
Borden, Cal	0.00	0.00	(2)	0.62	0.20	0.31	1.99	4.48	3.29	2.47	1.77	1.73	16.86
Brentwood, Cal	0.00	0.00	0.03	0.80	0.53	0.70	2.62	3.84	4.18	2.22	(2)	1.51	16.43
Brighton, Cal	0.00	0.00	0.66	0.80	0.39	0.44	2.08	3.68	5.32	3.54	0.25	1.55	18.71
Brown's, Nev	0.00	0.01	0.07	0.75	0.28	0.07	0.56	0.68	0.36	0.72	0.11	0.49	4.10
Byron, Cal	0.00	0.00	0.00	0.80	0.53	0.71	2.41	4.15	5.61	2.50	0.00	1.54	18.25
Caliente, Cal	0.00	0.00	0.08	0.76	0.05	(1)	2.00	4.98	5.00	2.90	1.10	1.28	....
Calistoga, Cal	0.00	0.00	1.14	1.69	0.24	1.32	6.57	4.42	9.78	5.98	0.42	2.06	33.62
Camp Wright, Cal	(1)	(1)	(1)	1.92	(1)	1.54	(1)	(1)	(1)	(1)	(1)	(1)	....
Carlin, Nev	0.00	0.58	0.00	1.17	0.00	1.85	1.20	1.79	1.82	1.42	1.58	1.85	13.26
Casa Grande, Ariz	0.00	0.81	0.00	0.10	0.00	0.86	0.75	(1)	1.08	0.00	0.00	(1)	....
Chico, Cal	0.00	0.00	0.65	3.78	0.86	0.50	2.48	2.16	5.57	2.93	0.40	2.11	21.44
Chualar, Cal	0.00	0.00	0.00	1.22	0.18	0.73	1.72	(1)	5.17	2.73	(2)	1.78	....
Cisco, Cal	0.00	0.00	0.00	1.50	2.20	2.70	8.40	12.00	14.65	10.10	0.00	3.54	55.09
Colfax, Cal	0.00	0.00	1.08	2.97	1.34	2.32	7.54	9.73	12.27	10.94	1.38	3.01	52.58
Colton, Cal	0.00	0.00	0.00	0.60	0.00	2.23	1.00	11.88	4.05	2.85	2.90	0.32	25.83
Corinne, Utah	0.48	0.20	0.00	1.95	1.25	0.80	0.55	1.90	3.80	2.10	1.75	0.70	15.48
Daggett, Ariz	(2)	0.06	0.00	0.00	0.00	0.29	0.48	1.44	1.17	0.10	0.49	0.00	....
Davis, Cal	0.00	0.00	0.72	0.90	0.35	0.43	3.07	3.78	5.09	3.07	0.00	1.39	18.80
Delano, Cal	0.00	0.00	0.00	0.26	0.00	0.49	1.61	2.88	1.98	2.31	(2)	0.22	....
Deming, N. Mex	2.95	1.41	0.53	(1)	0.30	(1)	0.81	0.70	0.20	0.20	0.00	0.00	....
Dunnigan, Cal	0.00	0.00	0.53	0.72	0.45	0.35	3.26	3.21	5.78	2.78	(2)	2.59	19.67
Elko, Nev	0.00	(1)	0.01	0.07	0.30	0.71	1.20	1.00	1.40	0.72	0.65	1.27	....

El Paso, Tex	(1)	0.80	1.45	1.20	0.80	0.77	0.25	0.20	0.12	0.07	0.00	(1)	....
Emigrant Gap, Cal	0.00	0.00	1.25	3.66	1.20	3.15	8.22	10.20	15.18	10.84	2.10	2.77	58.57
Farmington, Cal	0.00	0.00	0.76	1.66	0.79	0.78	1.44	5.04	6.58	4.72	0.85	1.82	23.34
Fenner, Cal	(1)	0.00	0.06	0.00	0.00	2.40	0.15	1.80	1.25	0.15	1.09	0.05	....
Fresno, Cal	0.00	0.00	(3)	2.00	(3)	0.34	2.29	3.18	2.81	2.85	1.11	1.29	15.87
Galt, Cal	0.00	0.00	0.62	1.55	0.75	0.65	1.70	4.09	5.46	2.09	0.58	1.36	19.05
Gilroy, Cal	0.00	0.00	0.27	1.01	0.83	0.78	2.94	6.65	7.24	3.30	0.34	1.24	24.60
Golconda, Nev	0.00	0.00	0.04	1.44	0.11	0.31	0.69	0.78	1.81	1.91	1.51	(1)	....
Goshen, Cal	0.00	0.00	0.00	0.50	(1)	0.10	1.56	3.80	1.71	1.97	0.54	(1)	....
Halleck, Nev	(1)	0.06	(3)	0.53	0.65	0.85	0.60	0.72	1.99	1.80	1.03	0.56	....
Hawley, Nev	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.77	(1)	(1)	(1)	....
Hawthorn, Nev	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.18	0.69	0.89	....
Hollister, Cal	0.00	0.00	0.25	0.68	0.85	0.90	1.05	3.30	4.38	2.66	0.62	1.85	16.54
Hotel del Monte, Cal	0.00	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	....
Hot Springs, Nev	0.20	0.00	0.00	0.84	0.00	0.03	0.70	0.80	(1)	0.44	0.29	1.28	....
Humboldt, Nev	0.00	0.00	0.18	2.13	0.44	0.87	1.20	0.75	0.89	0.51	0.00	(1)	....
Indio, Cal	0.00	(1)	0.00	0.06	0.00	0.86	0.00	3.16	0.62	0.44	0.46	0.00	....
Ione, Cal	0.00	0.00	1.14	1.16	1.15	1.70	2.81	6.13	7.87	6.51	0.39	2.03	30.89
Keeler, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	0.20	1.60	0.80	....
Keene, Cal	0.00	0.00	0.00	0.45	0.16	1.06	2.14	7.46	4.80	3.16	3.23	1.79	24.25
Kelton, Utah	0.50	0.10	0.00	0.41	0.41	0.16	0.05	0.72	2.20	1.80	0.81	0.35	7.51
Kingsburg, Cal	0.00	0.00	(3)	0.81	0.00	0.30	2.47	4.09	4.09	2.17	1.00	0.92	15.85
Knight's Landing, Cal	0.00	(1)	(3)	1.50	0.54	0.45	3.68	3.53	4.88	3.15	0.00	1.89	....
Lathrop, Cal	0.00	0.00	0.08	0.75	0.56	0.84	1.14	4.17	4.86	2.57	0.36	1.02	16.35
Lemoore, Cal	0.00	(1)	(3)	(1)	0.00	(1)	3.50	3.21	3.40	3.25	0.40	1.49	....
Livermore, Cal	0.00	0.00	0.35	1.52	0.57	0.44	4.03	5.29	5.92	2.70	0.20	1.78	22.75
Loma Prieta, Cal	(1)	(1)	(1)	(1)	(1)	(1)	4.03	8.08	11.72	6.19	0.16	(1)	....
Lordsburg, N. Mex	1.00	3.45	0.11	(1)	(1)	0.20	0.80	0.18	2.10	0.20	(3)	0.00	....
Los Angeles, Cal	0.00	0.00	0.00	1.23	0.00	2.17	3.02	10.74	9.35	3.15	0.70	1.80	32.16
Mammoth Tank, Cal	0.00	(1)	(1)	0.05	0.00	1.22	(3)	1.36	0.22	0.07	0.19	0.00	....
Maricopa, Ariz	0.00	3.57	0.30	(1)	0.00	(1)	1.05	3.58	2.20	0.10	0.00	(1)	....
Martinez, Cal	0.00	0.00	0.56	0.42	0.40	0.61	3.57	4.65	7.97	3.17	0.00	2.00	23.85
Marysville, Cal	0.00	(1)	1.15	0.75	0.61	0.40	2.49	2.82	3.31	2.57	0.00	1.18	....
Menlo Park, Cal	0.00	0.00	0.20	0.73	0.28	0.85	3.35	4.07	4.80	2.76	0.00	3.16	20.20
Merced, Cal	0.00	0.00	0.10	1.91	0.38	0.99	1.64	4.39	5.38	5.60	0.86	1.78	22.08
Modesto, Cal	0.00	0.00	0.25	1.39	0.16	0.44	0.75	2.01	3.89	2.85	0.15	0.99	12.88
Mojave, Cal	0.00	0.00	0.00	0.10	0.00	0.25	1.77	7.67	2.17	(3)	0.00	0.00	11.96
Monterey, Cal	0.00	0.00	0.19	0.71	0.39	1.16	2.60	4.84	6.08	3.75	0.86	1.80	21.88
Napa, Cal	0.00	0.00	0.95	1.27	2.12	0.60	3.02	3.89	5.72	0.00	0.13	2.12	19.82
Needles, Ariz	(1)	(1)	0.12	0.00	0.00	1.32	0.00	1.36	2.08	0.10	0.75	0.00	....
Newhall, Cal	0.00	0.00	0.00	0.16	0.00	3.34	6.66	14.53	9.73	3.85	2.17	1.67	42.11
Niles, Cal	0.00	0.00	0.71	1.47	0.88	1.21	3.78	6.18	5.41	3.74	0.18	2.69	26.25
Oakland, Cal	0.00	0.00	1.00	1.11	0.42	0.89	2.93	4.46	8.18	4.58	0.30	2.83	26.70
Ogden, Utah	(3)	0.62	(3)	2.21	1.46	1.62	0.77	2.21	3.63	3.85	1.61	0.61	18.49
Orland, Cal	0.00	0.00	0.30	1.60	0.12	0.29	3.38	1.58	4.81	2.97	0.23	2.55	17.83
Otego, Nev	0.00	0.14	0.04	0.62	1.70	0.72	1.05	0.85	1.20	1.91	1.26	1.21	10.70
Pajaro, Cal	0.00	0.00	0.33	0.92	0.68	1.05	2.68	6.33	5.33	3.61	0.82	1.47	23.22
Palisade, Nev	0.60	0.10	0.00	0.47	0.48	(1)	0.38	1.00	2.17	1.50	1.30	1.72	....
Pantano, Ariz	1.77	2.06	0.06	0.58	0.05	0.19	0.31	1.64	0.63	0.00	0.83	(1)	....
Petaluma, Cal	0.00	0.00	0.30	1.06	0.41	0.56	4.85	3.96	4.86	5.53	0.81	2.80	24.64

[1] No record.
[2] Record incomplete.
[3] Inappreciable.

Monthly and annual precipitation in inches and hundredths, at stations on the Central Pacific and Southern Pacific Railroads, &c.—Continued.

Stations.	1883.						1884.						Annual.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Pleasanton, Cal	0.00	0.00	0.35	1.47	0.33	0.65	3.41	6.18	6.53	3.14	0.05	1.78	23.89
Promontory, Utah	0.60	0.08	0.15	1.20	2.12	0.41	0.90	1.75	1.08	4.37	1.42	1.02	15.10
Ravenna, Cal	0.00	0.00	0.24	0.70	0.00	1.94	4.58	9.50	6.06	2.15	0.20	1.65	27.02
Red Bluff, Cal	0.00	0.00	1.00	2.85	0.90	0.68	3.73	2.60	7.59	4.86	0.25	1.24	25.55
Redding, Cal	0.00	0.00	(¹)	4.09	0.67	(¹)	5.45	3.94	(¹)	2.65	0.00	0.00	....
Reno, Nev	0.20	0.00	0.00	(¹)	0.60	0.00	1.70	1.25	1.30	0.35	0.00	0.80	....
Rocklin, Cal	0.00	0.00	1.10	1.27	0.60	0.68	3.27	4.56	5.77	4.19	0.00	1.20	22.64
Sacramento, Cal	0.00	0.00	0.65	0.76	0.58	0.52	2.71	3.85	6.50	3.60	0.00	1.35	20.52
Salinas City, Cal	0.00	0.00	0.20	1.15	0.26	0.87	1.52	4.63	4.69	2.87	0.71	2.54	19.44
San Fernando, Cal	0.00	0.00	0.00	0.70	0.00	2.76	3.00	10.60	10.51	3.48	1.06	(¹)	....
San José, Cal	0.00	0.00	(¹)	0.67	0.28	0.37	3.18	3.68	6.23	3.38	0.05	2.15	....
San Mateo, Cal	0.00	0.00	0.30	1.14	0.21	0.92	3.40	4.88	6.38	3.40	0.05	2.91	23.59
San Simon, Ariz	1.25	2.54	0.70	0.15	0.35	0.45	0.40	0.60	2.21	0.00	0.34	0.08	9.07
Santa Cruz, Cal	0.00	0.00	0.54	1.42	0.95	1.07	3.30	5.27	8.76	6.78	0.11	2.48	30.68
Soledad, Cal	0.00	0.00	0.08	0.48	0.17	0.45	2.74	4.24	3.74	1.67	1.13	1.56	16.26
Soquel, Cal	(¹)	0.00	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	(¹)	....
South Vallejo, Cal	0.00	0.00	0.61	0.56	0.42	0.72	2.52	3.21	6.06	3.14	0.00	1.74	18.98
Spadra, Cal	0.00	0.00	0.00	0.95	0.00	1.30	2.90	8.80	7.00	2.25	0.55	0.75	24.50
Stockton, Cal	0.00	0.00	0.50	0.88	0.49	0.91	1.68	4.02	5.77	2.65	0.31	1.05	18.26
Suisun, Cal	0.00	0.00	0.58	0.15	0.52	0.70	2.64	4.48	6.33	3.78	0.30	1.69	21.17
Summit, Cal	0.00	0.00	0.10	0.95	1.20	3.20	7.60	12.70	9.10	12.60	0.80	4.04	52.29
Sumner, Cal	0.00	0.00	0.00	0.30	0.05	0.20	1.48	2.20	1.06	1.27	1.74	0.90	9.20
Tecoma, Nev	0.05	0.15	0.00	1.50	0.38	0.36	0.10	0.87	0.93	2.16	1.10	0.50	8.10
Tehama, Cal	0.00	0.00	1.03	1.70	(¹)	0.44	3.15	2.08	4.94	2.61	(¹)	1.55	....
Tehichipa, Cal	0.00	0.00	0.00	0.81	0.14	0.72	1.54	7.26	3.46	1.85	1.26	1.05	18.09
Tennant, Cal	0.00	0.00	0.37	0.96	0.38	1.01	5.23	5.96	10.09	4.19	0.14	1.42	29.75
Terrace, Utah	0.15	(¹)	0.00	0.60	0.45	0.30	0.70	0.90	1.58	1.74	1.02	0.46	....
Texas Hill, Ariz	0.68	0.70	0.00	0.09	(²)	1.05	0.22	1.81	1.75	0.23	0.28	0.00	....
Toano, Nev	0.33	0.13	0.00	0.47	0.85	0.60	0.70	0.78	0.68	1.87	1.60	0.55	8.56
Tracy, Cal	0.00	0.00	0.20	0.40	0.30	0.55	0.90	3.43	3.27	1.65	0.10	2.05	12.85
Truckee, Cal	0.53	0.00	(¹)	2.46	2.50	1.60	6.65	11.20	5.36	3.90	0.06	1.02	....
Tucson, Ariz	2.20	1.40	0.10	0.65	0.02	0.06	0.08	3.30	0.14	0.20	0.00	0.10	8.25
Tulare, Cal	0.00	0.00	(²)	0.36	0.06	0.47	1.68	2.97	2.64	1.97	0.48	1.02	11.65
Turlock, Cal	0.00	0.00	0.10	1.31	0.32	0.51	1.47	2.94	2.00	2.20	0.73	1.93	13.51
Wadsworth, Nev	0.00	(¹)	0.00	0.30	0.25	0.25	0.25	0.50	0.98	0.00	0.27	1.40	....
Wells, Nev	0.23	0.28	0.12	1.15	1.30	0.90	0.70	0.70	1.17	1.14	1.48	1.57	10.74
White Water, Cal	0.00	0.00	0.00	0.78	0.00	1.92	1.10	6.96	3.05	6.00	0.00	(¹)	....

Willcox, Ariz	1.56	3.15	0.04	0.80	0.86	0.99	0.64	2.44	1.86	0.02	0.07	0.11	12.54
Williams, Cal	0.00	(¹)	0.50	0.20	0.05	0.15	3.01	1.58	3.93	1.96	(³)	2.96	....
Willows, Cal	0.00	0.00	0.41	1.30	0.15	0.05	5.42	3.11	4.80	2.58	0.12	0.90	18.84
Winnemucca, Nev	0.00	0.05	0.35	1.27	1.63	0.44	1.05	1.00	5.23	1.58	2.19	1.83	16.62
Woodland, Cal	0.00	0.00	0.44	1.03	0.29	0.29	3.47	3.44	4.69	3.83	0.00	(¹)	....
Yuma, Ariz	(¹)	0.00	0.13	0.05	(²)	1.61	(²)	1.11	1.48	0.07	0.27	(¹)	....

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[1] No record.

[2] Record incomplete.

[3] Inappreciable.

APPENDIX 57.

Table showing the precipitation at the special cotton-region stations of the Signal Service, United States Army, for the months July to October, 1883, and April to June, 1884, both inclusive.

Stations.	1883.				1884.		
	July.	August.	September.	October.	April.	May.	June.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Wilmington, N. C.:							
Cheraw, S. C	2.33	2.56	5.56	2.63	3.33	4.06	4.84
Florence, S. C	2.65	1.43	8.63	2.01	2.72	4.68	7.39
Goldsborough, N. C	7.43	6.26	10.39	3.99	2.75	2.94	6.21
Lumberton, N. C	2.41	2.20	12.50	3.10	2.79	4.23	5.60
New Berne, N. C	......	......	......	......	[1]3.54	2.12	4.04
Raleigh, N. C	......	......	......	......	[2]1.96	1.25	5.93
Salisbury, N. C	1.46	1.43	3.70	(³)	4.67	3.10	5.29
Wadesborough, N. C	1.55	2.24	4.60	(³)	1.50	2.28	2.11
Weldon, N. C	2.45	2.58	3.82	(³)	2.92	2.68	3.36
Charleston, S. C.:							
Branchville, S. C	3.62	4.09	3.09	0.67	4.62	1.58	6.55
Hardeeville, S. C	4.36	4.05	2.89	1.55	3.91	1.97	12.59
Jacksonborough, S. C	4.83	7.10	4.02	2.11	4.71	0.96	4.35
Kingstree, S. C	3.82	2.23	6.46	2.24	3.91	3.18	4.14
Saint George's, S. C	4.24	5.52	3.07	0.45	3.66	2.32	3.79
Saint Mathew's, S. C	2.76	5.25	5.06	1.90	4.17	4.74	5.01
Yemassée, S. C	2.54	11.17	2.80	0.57	5.18	5.68	5.55
Augusta, Ga.:							
Allendale, S. C	0.39	1.82	0.53	1.77	4.53	2.40	4.86
Athens, Ga	2.03	1.68	0.82	1.25	6.09	0.34	10.11
Batesburg, S. C	......	......	......	......	(³)	(⁴)	5.25
Blackville, S. C	......	......	......	......	(³)	(⁴)	5.33
Camak, Ga	......	......	......	......	(³)	(⁴)	5.44
Chester, S. C	1.40	0.60	(³)	3.54	4.22	4.18	8.99
Columbia, S. C	4.51	1.41	4.02	2.84	3.93	3.09	5.12
Covington, Ga	1.02	3.85	1.37	⁵1.56	......	......	......
Greenwood, S. C	......	......	......	......	(³)	(⁴)	10.51
Union Point, Ga	0.43	4.23	0.36	0.69	(³)	2.10	(³)
Washington, Ga	......	......	......	......	(³)	[2]1.16	6.74
Waynesborough, Ga	......	......	......	......	(³)	(⁴)	3.22
Savannah, Ga.:							
Albany, Ga	1.45	6.17	0.96	0.00	2.75	1.12	5.09
Allapaha, Ga	4.15	3.87	0.10	1.40	2.41	1.77	5.47
Bainbridge, Ga	0.29	0.15	0.48	0.00	6.40	0.24	6.01
Eastman, Ga	6.06	4.87	3.53	(³)	1.68	0.02	0.30
Fernandina, Fla	4.26	6.41	5.14	3.94	1.85	3.04	3.31
Fort Gaines, Ga	1.45	[2]3.57	0.14	0.03	3.44	1.99	11.40
Jesup, Ga	2.62	9.22	3.14	0.50	3.86	0.69	9.45
Live Oak, Fla	7.85	4.61	1.51	0.13	1.62	2.49	9.32
Millen, Ga	0.81	3.50	3.67	0.26	4.65	2.11	5.99
Quitman, Ga	3.51	4.41	1.94	0.00	10.26	0.80	9.13
Smithville, Ga	2.81	1.08	1.88	0.00	2.07	1.05	5.29
Thomasville, Ga	3.14	7.37	4.59	0.60	4.38	2.01	10.15
Waldo, Fla	4.38	6.63	3.78	0.45	3.39	6.55	0.78
Way Cross, Ga	1.30	0.33	0.13	0.15	4.17	2.53	7.97
Vicksburg, Miss.:							
Edwards, Miss	3.38	2.72	0.91	6.31	4.57	9.84	5.01
Jackson, Miss	4.20	5.50	0.00	4.85	4.25	6.08	2.60
Lake, Miss	2.70	2.23	0.00	2.30	4.14	7.08	3.26
Monroe, La	3.51	0.69	1.59	7.52	4.82	9.59	3.71
Atlanta, Ga.:							
Anderson, S. C	......	......	......	......	(³)	(⁴)	7.22
Calhoun, Ga	1.08	5.01	2.90	⁵3.40	......	......	......
Cartersville, Ga	1.80	5.62	0.98	2.50	7.60	2.11	7.34
Columbus, Ga	1.67	3.16	1.98	0.52	1.82	0.50	5.23
Dalton, Ga	1.45	3.02	4.58	2.16	4.31	2.54	8.51
Gainesville, Ga	0.86	6.29	0.70	2.20	7.51	1.02	12.10
Greenville, S. C	......	......	......	......	5.68	1.96	9.69
Griffin, Ga	1.57	12.90	0.85	1.75	4.53	1.16	12.22
Macon, Ga	3.45	5.28	0.85	1.00	1.86	2.49	8.56

[1] 19 days only.
[2] 16 days only.
³ No record.
⁴ Record incomplete.
⁵ Station closed.

Table showing precipitation at special cotton-region stations, &c.—Continued.

Stations.	1883. July.	1883. August.	1883. September.	1883. October.	1884. April.	1884. May.	1884. June.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Atlanta, Ga.—Continued.							
Madison, Ga	1.09	2.99	1.40	1.63	4.24	(1)	....
Newnan, Ga	1.18	6.47	0.50	3.13	6.02	1.64	10.55
Spartanburg, S. C	0.72	1.68	2.96	3.37	4.65	2.08	6.90
Toccoa, Ga	0.43	4.03	1.29	2.97	5.53	1.09	9.78
West Point, Ga	2.19	2.57	0.73	2.46	3.69	0.97	9.94
Montgomery, Ala.:							
Birmingham, Ala	0.77	5.56	(2)	0.06	6.87	0.42	4.43
Calera, Ala	1.30	0.11	1.50	0.17	3.50	1.30	7.55
Demopolis, Ala	1.02	4.52	0.23	1.27	(3)	(1)	....
Eufaula, Ala	....	....	....	....	(2)	[4]1.04	8.60
Fort Deposit, Ala	....	....	....	....	(2)	[5]0.18	4.56
Greenville, Ala	3.23	3.75	0.60	1.18	3.86	1.68	9.72
Marion, Ala	....	....	....	....	(2)	0.00	6.55
Opelika, Ala	2.94	2.50	0.60	2.58	3.10	0.64	10.15
Pine Apple, Ala	1.26	1.68	0.48	1.05	3.23	2.66	4.50
Selma, Ala	0.71	3.65	0.87	1.32	1.77	1.40	5.46
Talladega, Ala	0.30	1.31	0.04	0.30	(3)	(1)	....
Tuscaloosa, Ala	1.45	2.05	1.95	0.40	....	....	....
Uniontown, Ala	0.10	1.77	0.25	0.45	(3)	(1)	....
Mobile, Ala.:							
Aberdeen, Miss	0.95	2.80	1.34	6.56	2.81	1.79	6.74
Columbus, Miss	1.39	4.62	0.07	3.74	4.59	2.29	7.01
Evergreen, Ala	....	....	....	....	(2)	(3)	3.15
Livingston, Ala	....	....	....	....	2.19	3.51	5.41
Macon, Miss	0.11	0.05	0.10	2.60	4.82	3.05	7.76
Okolona, Miss	0.06	0.69	0.20	1.71	3.70	3.10	7.20
State Line, Miss	2.97	1.11	0.16	[1]1.18	....	....	....
Waynesborough, Miss	1.12	(2)	0.00	(2)	2.26	4.15	3.88
New Orleans, La.:							
Alexandria, La	3.10	0.80	(6)	2.30	(3)	7.28	10.19
Brookhaven, Miss	4.94	3.73	1.81	7.09	4.71	11.83	6.90
Cheneyville, La	3.52	2.12	1.71	0.04	(6)	8.75	3.40
Coushatta Chute, La	2.55	0.06	2.16	3.10	6.74	13.01	3.08
Franklin, La	3.90	1.99	0.65	[1]0.87	....	....	....
Lafayette, La	(2)	(2)	(2)	(2)	3.85	6.49	2.54
Minden, La	....	....	....	....	6.17	9.64	3.06
Morgan City, La	5.30	1.62	0.10	[1]1.81	....	....	....
Natchez, Miss	....	....	....	....	2.55	7.63	4.13
Natchitoches, La	0.70	1.05	0.00	4.59	4.08	8.67	5.57
New Iberia, La	1.26	1.08	1.25	(1)	....	....	....
Opelousas, La	....	....	....	....	3.80	8.29	3.30
Pass Christian, Miss	0.81	0.44	0.01	[1]0.30	....	....	....
Scranton, Miss	1.69	1.68	1.59	[1]1.09	....	....	....
Terre Bonne, La	4.59	2.01	2.14	[1]3.55	....	....	....
Whiteville, La	3.98	2.00	1.75	2.35	5.74	11.34	4.31
Galveston, Tex.:							
Austin, Tex	6.28	0.13	3.55	(2)	6.67	(2)	0.26
Beaumont, Tex	5.26	(2)	(2)	(2)	[7]1.51	5.07	0.45
Belton, Tex	2.63	0.05	0.24	(3)	5.39	7.11	2.07
Columbia, Tex	....	....	....	....	(2)	(2)	2.17
Corsicana, Tex	1.21	0.02	0.20	1.43	3.87	12.58	4.35
Cuero, Tex	1.71	0.26	4.58	2.58	1.60	6.89	2.19
Dallas, Tex	2.02	1.34	1.50	4.05	5.55	8.25	4.99
Hearne, Tex	1.22	(6)	1.65	2.01	4.26	10.10	0.70
Hempstead, Tex	2.04	1.92	2.38	(2)	2.27	14.60	0.90
Houston, Tex	2.20	0.87	7.45	3.21	4.39	16.88	4.30
Huntsville, Tex	1.55	0.95	2.00	2.23	2.56	13.65	1.61
Longview, Tex	0.17	0.08	(2)	(2)	0.38	4.98	3.42
Luling, Tex	4.03	0.00	5.50	3.69	[4]3.98	7.17	1.11
Orange, Tex	0.40	0.23	0.14	0.17	[4]2.80	3.20	(2)
San Antonio, Tex	....	0.54	1.98	3.75	(3)	6.79	0.43
Sour Lake, Tex	3.37	3.44	1.75	0.69	[8]1.68	8.43	6.95
Tyler, Tex	0.17	0.26	1.75	2.11	5.79	17.47	3.75
Waco, Tex	0.89	0.19	1.39	1.88	5.63	9.66	1.44
Weatherford, Tex	(2)	(2)	(2)	2.79	1.50	27.94	12.16
Weimar, Tex	0.55	0.02	2.94	3.12	6.03	11.56	1.12
Little Rock, Ark.:							
Arkansas City, Ark	(2)	(2)	(2)	(2)	[8]3.36	(3)	4.62
Brinkley, Ark	2.06	2.40	1.15	2.10	10.79	5.00	2.44
Devall's Bluff, Ark	2.08	0.09	0.21	0.63	1.57	4.08	1.60
Helena, Ark	....	....	....	....	(2)	(1)	3.18
Kensett, Ark	0.99	3.13	2.40	5.30	6.48	5.34	1.64

[1] Station closed.
[2] No record.
[3] Record incomplete.
[4] 20 days only.
[5] 19 days only.
[6] Inappreciable.
[7] 16 days only.
[8] 18 days only.

Table showing precipitation at special cotton-region stations, &c.—Continued.

Stations.	1883. July.	1883. August.	1883. September.	1883. October.	1884. April.	1884. May.	1884. June.
	Inches.	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*	*Inches.*
Little Rock, Ark.—Continued.							
Madison, Ark	2.29	0.62	0.99	(1)	(1)	(2)	6.67
Magnolia, Ark	......	......	......	......	(1)	(2)	0.46
Malvern, Ark	0.18	0.32	1.50	8.55	3.84	4.88	4.56
Monticello, Ark	8.01	1.51	0.12	2.29	5.77	4.50	2.04
Newport, Ark	......	......	......	......	7.65	2.92	2.53
Paris, Tex	0.88	5.79	0.10	(1)	2.79	8.80	6.01
Pine Bluff, Ark	......	......	......	......	......	[3]8.21	8.91
Prescott, Ark	[4]0.71	(2)	(1)	(1)	18.32	6.28	(2)
Russellville, Ark	(1)	(1)	(1)	(1)	(2)	1.57	1.67
Texarkana, Ark	0.06	(1)	(1)	(1)	10.96	7.49	2.56
Walnut Ridge, Ark	2.23	0.18	0.08	(5)	......	......	......
Memphis, Tenn.:							
Batesville, Miss	1.28	2.58	(1)	(1)	11.90	4.49	5.89
Bolivar, Tenn	......	......	......	......	(1)	[3]2.70	3.78
Brownsville, Tenn	4.80	1.03	1.17	6.34	6.24	5.97	2.10
Clarksville, Tenn	8.17	2.99	1.56	[5]2.91	......	......	......
Corinth, Miss	5.36	2.69	0.92	5.65	6.25	4.62	7.57
Covington, Tenn	......	......	......	......	(1)	(1)	3.79
Decatur, Ala	8.74	4.51	2.51	4.59	7.18	1.42	4.21
Dyersburg, Tenn	......	......	......	......	(1)	(2)	4.25
Erin, Tenn	0.11	0.07	0.18	[5]0.25	......	......	......
Grand Junction, Tenn	2.61	4.29	0.57	6.78	7.84	2.97	6.56
Grenada, Miss	2.17	(1)	(1)	(1)	1.10	1.56	(1)
Hernando, Miss	1.19	1.59	0.41	5.82	9.83	4.28	4.95
Holly Springs, Miss	......	......	......	......	(1)	[3]1.74	7.62
Milan, Tenn	5.68	5.22	0.69	4.74	4.68	5.46	8.51
Oxford, Miss	......	......	......	......	(1)	3.47	6.21
Paris, Tenn	5.20	2.57	1.09	6.73	1.56	1.82	0.81
Scottsborough, Ala	2.18	2.98	4.70	8.08	7.27	8.02	5.99
Tuscumbia, Ala	5.00	2.88	0.85	7.00	7.19	2.58	2.47
Withe, Tenn	2.92	0.95	0.70	1.28	2.75	4.65	1.36

[1] No record. [2] Record incomplete. [3] 18 days only. [4] 17 days only. [5] Station closed.

APPENDIX 58.

Monthly and annual mean relative humidity at stations of the Signal Service, United States Army, for the year ending June 30, 1884.

[Deduced from observations taken at 7 a. m., 3 and 11 p. m., Washington time. The daily means are obtained by dividing the sum of the 7 a. m., 3 and 11 p. m. observations by 3; the monthly means by dividing the sum of the daily means by the number of days in the month.]

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Albany, N. Y	68.9	60.8	65.1	65.1	65.6	70.0	61.2	67.4	66.8	61.5	60.8	58.6	63.9
Alpena, Mich	75.6	70.7	77.6	75.8	80.5	76.7	73.2	75.9	73.6	67.0	71.9	73.7	74.4
Apache, Fort, Ariz	60.4	65.6	50.0	56.4	55.0	70.5	65.9	70.1	71.8	57.7	54.7	50.7	60.7
Assinaboine, Fort, Mont	46.3	51.0	56.4	66.8	65.6	67.0	75.3	84.3	81.1	66.5	54.9	57.2	64.4
Atlanta, Ga	60.9	70.4	67.8	74.3	64.1	68.7	70.9	63.0	65.8	59.3	59.4	75.2	66.6
Atlantic City, N. J	78.3	76.0	77.5	78.5	72.0	76.8	75.9	83.2	82.0	75.4	75.2	81.7	77.7
Augusta, Ga	64.7	[1]68.0	70.8	71.8	66.8	70.0	68.2	66.3	65.8	63.3	65.5	74.7	68.0
Baltimore, Md	67.3	63.7	71.2	72.0	64.2	67.3	65.9	68.6	67.5	57.8	59.0	65.9	65.9
Barnegat City, N. J	81.5	76.7	80.5	78.6	74.0	75.7	77.7	87.7	79.2	71.8	74.5	77.6	78.0
Bennett, Fort, Dak	66.1	68.4	61.0	69.2	62.2	75.8	75.9	81.1	77.3	68.4	64.3	67.4	69.8
Benton, Fort, Mont	44.4	[2]44.4	54.4	62.6	49.4	48.0	60.0	79.5	76.4	[2]68.4	59.5	61.0	58.6
Bismarck, Dak	62.7	66.2	60.4	[2]79.6	[2]81.0	65.9	85.7	87.3	78.5	73.8	65.6	78.0	72.3
Block Island, R. I	82.2	79.6	78.7	79.1	78.8	80.5	80.2	86.3	79.7	83.9	84.5	83.9	81.4
Boise City, Idaho	([3])	([3])	([3])	77.3	75.7	([3])	81.1	79.4	69.1	60.7	65.4	61.6	....
Boston, Mass	71.7	66.8	78.8	78.9	70.5	77.7	78.3	85.3	77.4	82.9	76.7	74.5	75.8
Brownsville, Tex	78.1	74.4	80.6	78.7	81.3	84.8	78.4	77.1	80.4	76.8	67.8	80.2	77.8
Buffalo, N. Y	75.9	71.4	74.6	74.5	70.0	67.0	84.2	84.0	78.9	76.7	75.0	70.5	75.2
Buford, Fort, Dak	60.9	66.7	61.3	78.7	77.3	[4]83.8	87.9	80.8	82.6	72.1	[5]57.9	60.0	72.5
Cairo, Ill	73.8	72.3	69.9	79.4	68.7	69.9	76.6	75.4	68.5	66.0	69.9	82.9	72.8
Canby, Fort, Wash. T	....	([6])	[7]84.9	86.9	90.8	86.5	81.8	78.7	83.2	85.1	81.3	86.9	....
Cape Henry, Va	73.7	75.5	79.4	77.9	67.4	74.8	78.4	81.9	80.7	73.2	71.8	79.1	76.2
Cape May, N. J	[7]80.7	[2]75.4	[2]77.5	76.1	73.6	79.6	80.0	84.0	82.9	79.0	76.2	79.8	78.7
Cape Mendocino, Cal	90.4	89.2	76.6	80.6	79.5	82.1	79.2	78.0	79.6	83.8	84.5	85.5	82.4
Cedar Keys, Fla	73.9	74.6	74.5	80.5	77.1	85.2	83.8	79.7	79.6	71.7	72.2	75.3	77.3
Charleston, S. C	81.5	82.6	85.6	87.6	76.5	80.8	77.5	77.8	[1]78.1	71.1	[1]74.4	80.7	79.5
Charlotte, N. C	60.3	61.6	73.0	77.7	62.6	66.6	71.0	70.6	68.9	59.3	64.5	75.8	67.7
Chattanooga, Tenn	68.6	75.0	72.5	80.5	66.4	68.8	70.3	72.0	67.3	66.6	66.9	80.7	70.9
Cheyenne, Wyo	51.6	53.7	44.0	57.9	41.9	57.3	60.4	59.5	57.6	61.3	57.2	57.1	55.0

[1] 30 days only.
[2] 28 days only.
[3] Record incomplete.
[4] 27 days only.
[5] 26 days only.
[6] Observations commenced September 1, 1883.
[7] 29 days only.

Monthly and annual mean relative humidity at stations of the Signal Service, United States Army, &c.—Continued.

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
Chicago, Ill	69.6	68.2	69.1	71.8	66.2	70.2	68.6	69.5	67.7	67.6	65.5	[1]73.0	68.9
Chincoteague, Va	81.7	79.0	82.9	81.7	75.8	78.4	83.0	87.6	82.3	76.9	77.7	85.4	81.0
Cincinnati, Ohio	64.0	61.5	65.0	72.7	69.2	78.1	[2]79.2	78.6	69.2	66.7	64.9	69.1	69.8
Cleveland, Ohio	67.5	65.5	67.1	68.2	65.1	75.3	79.9	84.8	77.1	68.8	66.5	69.2	71.2
Columbus, Ohio	65.4	62.7	66.2	72.0	65.0	71.0	75.8	76.0	68.4	66.5	65.4	66.0	68.4
Concho, Fort, Tex	63.8	54.4	67.7	79.1	67.5	71.9	73.7	70.7	56.3	61.1	72.5	67.9	67.2
Custer, Fort, Mont	(3)	44.7	56.2	70.8	67.5	72.5	78.0	77.9	81.0	64.9	65.9	67.7	....
Davenport, Iowa	70.4	69.1	67.1	72.5	65.5	64.0	[2]61.2	68.8	63.7	61.9	64.8	73.0	66.8
Davis, Fort, Tex	56.5	52.9	57.2	56.7	57.0	55.6	58.6	49.4	51.1	54.8	50.9	57.6	54.9
Dayton, Wash. T	42.2	48.8	51.1	71.1	73.4	83.5	82.7	77.6	74.6	64.2	55.8	62.0	65.5
Deadwood, Dak	73.2	70.6	71.4	[1]77.9	69.4	71.4	75.5	77.4	77.0	75.0	68.4	67.0	72.9
Delaware Breakwater, Del	80.2	79.2	83.5	80.7	75.9	77.9	81.3	85.6	84.1	77.6	74.9	83.1	80.3
Denver, Colo	50.5	48.6	47.7	56.2	46.8	61.8	54.4	57.2	55.6	56.6	57.5	53.4	53.8
Des Moines, Iowa	71.5	71.4	67.4	74.0	63.4	66.0	63.3	65.2	67.1	61.4	62.9	72.7	67.2
Detroit, Mich	71.7	66.2	[1]71.9	78.2	72.1	76.0	72.9	77.3	72.5	62.7	61.3	67.4	70.4
Dodge City, Kans	59.8	77.8	67.2	70.1	61.2	67.7	68.5	69.9	58.9	56.2	66.9	74.2	66.1
Dubuque, Iowa	67.9	66.0	66.5	67.7	60.2	60.7	56.1	64.8	61.1	58.0	59.9	73.4	63.8
Duluth, Minn	65.4	74.1	72.5	73.2	75.8	76.3	77.6	72.7	69.0	73.2	67.6	78.4	72.9
Eastport, Me	78.5	71.6	72.4	73.5	74.5	75.7	74.8	80.5	75.3	80.8	77.1	72.9	75.6
Elliott, Fort, Tex	59.1	58.0	61.1	74.2	55.2	65.2	65.8	67.6	54.0	52.2	65.6	73.5	62.6
El Paso, Tex	45.9	48.8	52.6	53.6	54.7	58.3	58.7	[4]47.3	36.8	31.9	26.7	34.4	45.8
Erie, Pa	74.0	68.7	78.8	77.0	71.1	80.4	82.4	83.2	77.0	73.0	67.6	69.4	74.8
Escanaba, Mich	76.5	74.4	77.8	73.5	74.9	77.2	74.1	72.6	72.0	69.9	68.2	71.9	73.5
Fort Smith, Ark	74.4	72.1	63.8	78.2	65.8	67.2	69.8	72.7	63.1	66.5	68.6	75.0	69.8
Galveston, Tex	71.8	69.3	70.0	77.6	74.6	77.5	78.4	79.0	78.4	78.4	78.1	73.7	75.6
Grand Haven, Mich	78.2	77.9	77.0	76.6	78.1	79.9	77.8	81.4	76.4	64.6	67.9	[1]69.0	75.4
Grant, Fort, Ariz	51.6	57.8	37.3	41.7	44.8	55.9	52.2	60.9	52.1	35.1	30.0	24.9	45.4
Hatteras, N C	76.9	80.1	83.5	89.1	78.8	81.6	80.2	82.4	79.3	76.4	80.6	84.9	81.2
Helena, Mont	63.5	49.9	52.2	78.3	66.9	[2]67.6	(6)	74.6	69.5	60.7	52.1	56.2	....
Huron, Dak	75.8	78.1	72.1	72.2	64.0	66.9	72.0	74.6	78.3	73.7	67.7	74.7	72.5
Indianapolis, Ind	65.5	64.2	66.1	70.5	62.3	68.1	67.2	73.1	63.4	59.1	62.0	64.6	65.5
Indianola, Tex	78.7	74.4	79.4	82.0	79.6	81.8	76.3	80.2	80.0	81.5	81.2	78.9	79.5
Jacksonville, Fla	72.0	76.4	77.6	79.7	75.0	77.8	77.3	75.0	72.9	66.1	72.8	79.3	75.2
Keokuk, Iowa	69.8	70.8	65.8	74.2	66.4	70.0	74.5	78.0	73.9	66.0	65.2	75.4	70.8
Key West, Fla	69.4	71.3	75.0	80.7	79.6	79.2	79.1	75.8	73.9	[1]68.4	69.6	74.2	74.7
Kitty Hawk, N. C	72.1	77.7	80.5	81.9	71.4	74.6	78.5	79.7	76.2	73.5	74.8	81.6	76.8
Knoxville, Tenn	68.8	72.1	68.5	82.3	69.8	77.1	78.9	74.9	71.6	65.9	66.8	75.7	72.7

La Crosse, Wis	67.2	66.0	70.0	67.5	70.6	73.6	73.2	74.1	70.1	¹60.5	56.2	68.7	68.1
Leavenworth, Kans	67.9	71.7	67.2	73.8	62.4	65.8	70.6	64.9	67.3	67.3	64.9	71.7	67.9
Lewiston, Idaho	83.4	²47.5	53.7	65.7	69.1	73.2	70.0	73.9	68.2	64.0	55.9	67.4	61.8
Little Rock, Ark	75.3	75.6	69.3	²78.2	68.1	69.9	69.8	73.4	65.8	70.5	75.4	80.7	72.6
Los Angeles, Cal	72.8	71.1	66.9	69.2	59.5	68.8	61.9	71.1	76.0	79.4	76.1	75.5	70.8
Louisville, Ky	68.8	65.9	65.5	75.9	68.2	72.7	75.6	74.5	66.5	68.4	75.2	76.6	70.7
Lynchburg, Va	60.2	60.9	69.6	73.1	60.7	63.0	62.6	66.4	65.0	66.5	71.2	¹78.8	66.5
Mackinaw City, Mich	74.7	74.3	76.4	72.4	79.1	82.7	77.6	78.3	75.2	70.2	78.1	76.9	75.9
Macon, Fort, N. C	79.7	81.4	85.2	85.9	75.8	78.2	78.6	84.2	76.8	75.4	80.8	84.0	80.5
Maginnis, Fort, Mont	38.6	40.6	49.0	66.7	52.8	50.0	51.5	50.3	49.2	47.8	50.4	51.5	49.9
Marquette, Mich	69.1	67.1	68.6	70.2	68.1	70.3	68.3	69.8	67.1	68.0	67.7	66.9	68.0
Memphis, Tenn	69.4	72.3	67.0	80.8	68.6	²72.6	77.9	74.8	62.8	68.8	²67.6	77.7	71.8
Milwaukee, Wis	71.7	71.8	75.8	73.6	70.2	75.7	76.7	81.5	79.1	72.6	69.4	80.1	74.8
Mobile, Ala	71.9	72.7	68.8	74.6	69.9	75.6	74.6	74.5	74.0	70.3	74.4	74.1	73.0
Montgomery, Ala	65.1	70.0	64.1	68.0	67.4	72.5	73.6	68.8	67.9	68.9	63.0	76.4	68.4
Moorhead, Minn	³69.6	69.1	72.2	80.7	75.8	²83.8	89.8	87.4	85.0	69.8	61.2	67.8	76.0
Mount Washington, N. H	92.6	92.0	85.7	³92.1	88.0	⁴81.6	80.9	87.9	86.1	91.9	94.2	78.2	87.6
Nashville, Tenn	75.9	76.4	71.3	81.2	74.0	77.6	80.3	77.2	72.1	69.8	65.5	78.1	75.0
New Haven, Conn	71.5	71.5	73.6	73.3	69.7	76.3	73.5	82.0	73.4	69.4	69.6	70.9	72.9
New London, Conn	75.0	73.8	77.6	77.8	73.6	74.1	75.6	82.9	77.7	72.4	70.9	75.9	75.6
New Orleans, La	70.6	69.1	67.0	75.1	68.7	72.8	71.3	70.5	71.9	69.2	71.6	72.4	70.8
New York City	70.1	62.2	71.4	69.2	69.0	74.3	78.4	80.3	73.6	66.8	68.6	70.3	71.2
Norfolk, Va	71.2	72.8	79.1	79.3	67.2	71.1	71.8	76.4	73.9	66.2	67.1	74.7	72.6
North Platte, Nebr	64.6	72.2	¹68.2	76.2	61.8	¹74.6	73.7	72.5	75.5	69.1	68.8	70.4	70.6
Olympia, Wash. T	57.2	64.5	⁴80.2	83.3	84.1	84.3	82.9	80.4	81.1	78.3	71.0	75.0	76.9
Omaha, Nebr	68.1	76.0	73.1	77.0	68.1	67.6	69.6	72.1	73.3	72.0	69.8	75.4	71.8
Oswego, N. Y	74.1	72.1	73.8	68.5	66.7	68.1	65.6	74.1	75.9	74.7	74.0	73.7	71.8
Palestine, Texas	72.3	65.0	62.5	⁷74.7	69.3	68.7	67.3	69.7	66.2	75.0	81.8	77.8	70.8
Pensacola, Fla	76.0	77.1	71.4	75.4	67.2	75.9	70.6	77.4	78.5	72.5	78.0	79.1	74.9
Philadelphia, Pa	80.4	83.2	83.8	80.0	73.8	78.0	78.4	79.8	78.4	81.5	87.1	80.0	79.9
Pike's Peak, Colo	71.7	73.5	77.6	83.1	75.4	80.6	77.6	80.7	76.9	79.6	88.0	79.7	78.7
Pittsburg, Pa	70.7	69.4	69.0	72.8	69.3	80.7	81.2	80.5	74.7	68.4	65.6	69.4	72.2
Port Huron, Mich	80.3	73.6	76.6	76.7	80.3	79.5	79.8	82.5	79.7	75.8	73.0	78.4	77.6
Portland, Me	70.8	66.6	69.9	69.8	69.4	78.8	74.3	75.7	67.4	69.7	65.1	66.0	69.8
Portland, Oreg	62.2	71.9	72.0	81.0	86.9	²83.5	77.4	80.7	74.1	68.7	63.9	67.8	74.1
Prescott, Ariz	57.7	60.5	40.1	52.2	49.1	65.5	58.6	70.1	71.9	64.3	56.8	48.3	57.9
Provincetown, Mass	75.0	72.0	75.4	73.6	76.9	80.1	77.4	85.9	80.0	(⁸)	....	....	....
Red Bluff, Cal	33.1	33.7	36.7	60.9	69.8	79.3	73.8	70.8	73.0	72.6	58.2	59.4	60.1
Rio Grande City, Tex	....	....	....	⁹69.5	71.9	77.8	61.7	61.9	62.6	⁵61.4	66.1	62.9	....
Rochester, N. Y	....	....	....	¹⁰75.9	70.5	79.0	79.1	81.7	76.1	70.0	68.0	67.9	....
Roseburg, Oreg	55.0	63.0	66.8	78.6	82.2	85.0	81.3	79.1	75.8	74.2	66.3	69.2	73.0
Sacramento, Cal	57.8	²57.8	57.6	71.2	¹77.5	88.5	80.8	⁴79.7	²76.3	74.6	69.0	¹69.8	71.7
Saint Louis, Mo	73.3	73.8	65.4	81.8	66.5	72.7	72.8	73.3	78.8	68.1	67.8	77.4	72.6
Saint Michael's, Fort, Alaska	86.2	....	....	....	....	....	....	....	....	....	....	....	....
Saint Paul, Minn	69.8	69.9	70.4	68.9	64.8	68.1	88.6	69.8	67.1	61.1	68.0	77.6	70.8
Saint Vincent, Minn	75.0	81.8	79.5	83.2	76.9	86.1	88.7	77.5	79.9	78.3	69.3	78.8	79.6
Salt Lake City, Utah	81.7	85.4	35.3	57.4	55.4	58.0	54.6	57.2	56.6	54.9	50.9	39.4	49.1

[1] 29 days only.
[2] 30 days only.
[3] Observations re-commenced July 21, 1883.
[4] 28 days only.
[5] 27 days only.
[6] Record incomplete.
[7] 25 days only.
[8] Observations discontinued April 1, 1884.
[9] Observations re-commenced October 1, 1883.
[10] Observations re-commenced October 10, 1883.

Monthly and annual mean relative humidity at stations of the Signal Service, United States Army, &c.—Continued.

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*
San Diego, Cal	74.5	76.4	72.5	70.4	64.8	64.7	62.9	71.9	75.5	79.7	80.4	78.4	72.7
Sandusky, Ohio	([1])	67.5	72.4	74.4	70.1	70.8	69.8	74.3	72.1	66.3	66.5	72.5	....
Sandy Hook, N. J	70.4	68.5	73.0	72.1	74.1	73.7	72.4	81.5	75.9	76.1	70.1	70.6	73.2
Sanford, Fla	72.7	77.1	78.4	81.9	78.1	76.7	78.2	75.0	72.9	68.3	71.3	78.6	75.8
San Francisco, Cal	80.1	83.7	76.7	79.5	80.3	80.7	82.3	76.6	78.2	79.1	76.0	[2]79.9	79.4
Savannah, Ga	68.3	73.8	75.9	76.5	68.3	70.1	[3]66.9	70.4	66.9	61.0	66.3	[4]76.7	70.1
Shaw, Fort, Mont	47.2	49.5	56.5	75.7	65.0	60.5	67.9	76.6	68.2	61.1	51.7	53.5	61.1
Shreveport, La	66.4	65.0	61.6	72.1	68.1	67.8	68.0	68.5	63.1	67.8	78.9	74.9	68.5
Sitka, Alaska	79.1	81.2	79.5	78.6	74.5	74.5	78.5	73.9	75.6	65.5	76.2	78.1	75.8
Smithville, N. C	75.6	76.2	83.1	82.3	72.8	77.4	78.5	81.9	77.0	73.9	80.0	81.0	78.3
Spokane Falls, Wash. T	43.8	46.9	61.5	72.0	78.7	73.4	[5]80.4	78.1	78.9	69.2	58.3	60.7	66.8
Springfield, Ill	68.9	67.2	62.1	73.8	63.8	71.0	73.0	75.1	70.7	62.9	65.0	74.9	69.0
Stockton, Fort, Tex	61.6	50.7	66.9	67.9	63.7	63.0	63.2	54.6	47.4	51.4	56.6	61.0	59.0
Tatoosh Island, Wash. T	....	....	....	[6]89.4	91.6	87.6	84.7	81.4	81.0	83.0	83.5	87.1	....
Thomas, Camp, Ariz	46.4	52.5	38.5	41.3	53.8	70.0	62.9	69.5	62.8	47.8	45.8	36.3	52.8
Toledo, Ohio	66.9	64.7	70.2	69.8	62.8	71.5	77.6	80.8	73.4	64.6	66.7	71.4	70.0
Unalashka, Alaska	77.3	82.9	78.2	75.3	75.5	77.8	81.8	82.8	77.4	77.3	74.5	82.4	78.6
Vicksburg, Miss	72.3	70.6	66.9	74.8	68.2	70.8	70.8	66.5	63.6	66.2	74.3	75.5	7.00
Washington City	68.9	67.9	74.3	77.0	71.0	75.5	77.9	78.5	72.9	62.1	66.0	71.4	72.0
West Las Animas, Colo	41.3	54.7	53.6	58.7	47.8	66.6	69.9	73.5	52.8	53.8	50.8	61.8	57.8
Wilmington, N. C	74.6	75.4	82.4	79.2	66.2	69.1	70.1	74.1	68.8	63.4	72.5	74.9	72.6
Yankton, Dak	71.5	72.6	70.5	74.5	65.9	69.3	72.2	69.6	72.8	72.3	65.9	74.4	71.0
Yuma, Ariz	51.0	49.8	41.9	49.1	[7]37.5	([8])	40.6	54.9	50.8	[2]44.8	40.8	41.9	....

[1] Observations re-commenced July 20, 1883.
[2] 29 days only.
[3] 30 days only.
[4] 27 days only.
[5] 26 days only.
[6] Observations commenced October 1, 1883.
[7] 28 days only.
[8] No record.

APPENDIX 59.

Table showing the mean relative humidity at stations of the Signal Service, United States Army, for each month and the year, deduced from the three telegraphic observations, computed from the commencement of observations at each, to December 31, 1883.

[The daily mean is obtained by dividing the sum of the three telegraphic observations by three; the monthly mean by dividing the sum of the daily means by the number of days in the month.]

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Pr. cent.*
Albany, N. Y	Dec. 22, 1873	76.7	74.6	71.9	63.4	62.6	66.8	67.8	68.2	72.2	72.8	75.0	76.0	70.7
Alpena, Mich	Sept. 10, 1872	76.8	73.8	75.8	69.3	68.4	72.9	72.5	75.9	77.5	77.0	80.8	79.4	75.0
Apache, Fort, Ariz	Oct. 9, 1877	60.2	58.8	53.2	43.4	35.8	32.5	57.4	64.6	50.4	49.7	54.0	58.1	51.8
Assinaboine, Fort, Mont	Oct. 6, 1879	61.5	61.3	61.9	56.4	54.7	55.1	49.9	49.6	56.8	66.6	65.6	62.9	57.9
Atlanta, Ga	Sept. 25, 1878	73.0	64.1	59.7	62.1	63.0	64.3	65.0	73.5	71.3	71.8	66.5	69.4	67.0
Atlantic City, N. J	Dec. 10, 1873	80.7	77.6	77.0	76.4	79.1	81.7	82.1	82.2	81.3	78.3	76.9	79.5	79.4
Augusta, Ga	Nov. 2, 1870	74.3	68.4	65.1	64.8	64.4	68.1	68.7	73.3	72.4	71.9	72.3	73.4	69.4
Baltimore, Md	Jan. 1, 1871	70.8	66.8	65.0	60.6	60.9	64.5	64.3	69.3	70.9	68.7	66.5	68.2	66.4
Barnegat City, N. J	Dec. 10, 1873	81.5	78.3	76.2	75.2	77.0	79.5	80.6	79.7	79.7	78.0	77.1	79.9	78.6
Bennett, Fort, Dak	Dec. 22, 1879	70.0	69.5	71.0	67.9	69.0	70.8	68.3	64.1	68.6	66.8	70.3	72.1	69.1
Benton, Fort, Mont	Oct. 11, 1879	72.1	71.8	63.2	63.7	65.1	59.5	46.7	47.5	55.4	64.0	61.4	58.3	60.7
Bismarck, Dak	Sept. 15, 1874	75.7	76.0	74.0	66.1	62.1	66.0	62.0	61.3	61.5	65.2	73.2	74.6	68.5
Block Island, R. I	Sept. 1, 1880	73.4	74.1	72.7	72.4	81.4	82.4	81.4	79.9	82.3	77.7	75.0	76.8	77.5
Boisé City, Idaho	July 1, 1877	75.0	73.0	65.0	60.9	53.8	47.0	38.2	39.3	46.7	62.7	68.4	75.2	57.9
Boston, Mass	Nov. 1, 1870	71.8	69.6	69.4	64.8	64.1	67.8	69.7	71.5	73.3	70.1	70.5	72.7	69.7
Brownsville, Tex	Aug. 25, 1875	79.6	78.9	78.3	75.0	75.2	72.6	71.9	73.2	76.7	76.0	77.8	80.2	76.6
Buffalo, N. Y	Nov. 1, 1870	78.7	76.6	74.6	70.2	66.9	70.7	71.3	69.9	70.7	71.3	74.8	78.3	73.2
Buford, Fort, Dak	Oct. 23, 1878	72.1	73.1	74.2	68.4	65.4	69.5	66.1	62.3	61.6	68.2	75.1	76.1	69.3
Cairo, Ill	June 1, 1871	73.7	69.2	63.7	61.6	66.9	71.7	71.3	71.7	72.8	70.5	68.6	71.6	69.4
Cape Henry, Va	Dec. 15, 1873	76.9	73.1	71.7	70.8	71.8	73.1	74.7	77.2	76.1	73.0	70.9	72.8	73.5
Cape May, N. J	May 24, 1871	78.2	76.7	74.9	74.2	76.7	75.9	79.7	80.3	76.8	75.1	72.5	75.7	76.6
Cape Mendocino, Cal	July 27, 1882	80.2	77.2	84.3	85.3	86.1	81.9	90.4	87.8	79.0	83.0	78.6	80.8	82.8
Cedar Keys, Fla	Nov. 7, 1879	81.0	75.4	71.5	74.1	70.3	74.0	73.0	74.8	75.2	76.4	78.6	80.8	75.4
Charleston, S. C	Jan. 5, 1871	75.4	71.8	69.6	71.0	72.2	73.1	74.3	76.6	76.6	76.5	74.7	74.4	73.9
Charlotte, N. C	Oct. 6, 1878	74.1	65.2	61.5	62.7	61.5	60.7	62.2	68.6	70.1	69.9	67.8	70.8	66.2
Chattanooga, Tenn	Jan. 8, 1879	76.3	66.1	62.4	62.4	67.0	69.0	68.5	75.4	75.4	76.3	70.3	71.9	70.1
Cheyenne, Wyo	Nov. 1, 1870	54.1	52.3	52.4	54.5	54.1	47.6	49.8	48.8	44.6	46.9	51.9	54.9	50.7
Chicago, Ill	Nov. 1, 1870	76.0	72.5	71.5	66.5	67.5	70.6	70.6	70.6	68.8	69.8	70.8	73.9	70.8
Chincoteague, Va	Mar. 16, 1880	84.0	77.7	74.4	77.2	82.8	82.4	81.9	82.5	82.5	81.4	77.8	79.6	80.5
Cincinnati, Ohio	Nov. 1, 1870	72.3	69.4	64.8	59.2	58.8	64.3	64.4	66.2	66.4	66.0	68.4	72.0	65.5
Cleveland, Ohio	Nov. 1, 1870	77.9	73.8	74.5	66.4	64.8	68.4	70.1	68.5	69.9	69.2	73.2	77.9	71.3
Columbus, Ohio	July 1, 1878	72.2	69.2	64.9	60.2	60.8	65.2	63.5	66.6	68.2	69.4	68.5	73.0	66.5

Table showing the mean relative humidity at stations of the Signal Service, United States Army, for each month and the year, &c.—Continued.

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Pr. cent.*
Concho, Fort, Tex	Oct. 10, 1875	65.7	62.3	58.4	55.9	58.7	57.1	58.8	62.5	66.0	67.9	68.6	63.3	62.6
Custer, Fort, Mont	Dec. 5, 1878	72.3	71.3	64.2	60.0	66.0	64.0	48.6	41.2	50.1	58.4	63.4	67.5	60.1
Davenport, Iowa	May 24, 1871	74.1	71.7	69.3	62.5	63.2	69.4	68.8	68.0	68.6	66.8	70.0	72.9	68.8
Davis, Fort, Tex	Dec. 24, 1877	55.9	49.5	45.3	36.8	45.2	46.8	54.8	58.3	58.6	52.5	53.1	54.0	52.1
Dayton, Wash. T	July 1, 1879	80.6	76.0	68.8	66.0	62.6	58.4	51.9	52.8	56.9	69.8	78.8	81.6	67.1
Deadwood, Dak	Dec. 25, 1877	66.5	66.8	67.4	67.7	67.4	64.8	62.3	58.0	57.5	63.9	65.8	67.3	65.3
Delaware Breakwater, Del	Jan. 28, 1880	84.5	78.5	77.4	76.2	79.6	79.6	79.8	79.0	82.0	79.4	76.8	78.1	79.1
Denver, Colo	Nov. 19, 1871	53.3	53.2	48.2	48.5	48.5	43.2	46.6	46.9	44.0	44.7	50.3	55.5	48.5
Des Moines, Iowa	Aug. 1, 1878	71.1	69.3	67.4	62.6	66.8	72.8	71.2	68.9	68.4	69.7	68.3	71.7	69.2
Detroit, Mich	Nov. 1, 1870	78.2	74.9	73.4	64.0	63.0	68.7	70.0	70.9	72.7	70.6	74.0	78.6	71.5
Dodge City, Kans	Sept. 15, 1874	68.0	65.4	59.6	53.9	63.9	61.0	62.4	64.1	58.4	62.1	61.2	65.4	62.1
Dubuque, Iowa	July 10, 1873	69.7	68.5	67.6	60.8	61.0	68.3	66.3	67.8	70.1	68.4	70.6	70.2	67.3
Duluth, Minn	Nov. 1, 1870	74.6	71.5	69.0	67.1	68.2	71.8	68.1	72.5	72.9	69.9	75.5	75.3	71.8
Eastport, Me	Apr. 1, 1873	77.0	76.0	75.3	71.3	73.3	76.9	78.7	78.9	79.4	76.5	75.2	77.1	76.2
Elliott, Fort, Tex	Nov. 29, 1879	42.7	48.7	43.2	43.8	52.6	47.2	51.9	51.9	52.4	60.8	48.3	46.6	49.4
El Paso, Tex	Nov. 5, 1877	50.8	51.4	39.9	33.9	35.2	37.3	47.8	54.0	55.1	54.2	56.3	57.2	49.8
Erie, Pa	May 25, 1873	79.5	77.1	76.6	69.4	65.4	69.6	69.9	69.7	72.0	72.0	74.1	79.9	72.3
Escanaba, Mich	May 24, 1871	75.6	72.7	71.5	68.7	68.9	73.0	72.8	76.1	77.3	76.3	77.5	77.8	74.1
Fort Smith, Ark	June 1, 1882	73.8	72.6	60.1	62.2	67.6	73.2	72.5	72.0	70.9	77.6	68.3	68.2	69.4
Galveston, Tex	Apr. 19, 1871	79.0	78.0	78.9	75.8	74.0	73.0	72.8	72.9	78.2	74.1	77.2	79.9	75.7
Grand Haven, Mich	May 24, 1871	78.5	76.6	75.8	67.1	66.5	72.2	72.9	74.9	75.0	73.6	75.9	78.7	74.0
Grant, Fort, Ariz	Nov. 1, 1875	48.9	45.5	38.0	28.4	22.6	25.1	48.6	56.9	41.4	35.9	40.7	47.1	40.1
Hatteras, N. C	Dec. 1, 1880	87.6	81.6	76.3	81.0	80.3	82.2	79.9	79.9	82.1	83.4	79.7	80.2	81.3
Helena, Mont	Oct. 15, 1879	78.5	70.6	63.2	62.2	56.9	57.5	51.3	46.0	53.9	66.4	64.1	62.6	63.4
Huron, Dak	July 1, 1881	60.3	63.2	66.4	68.6	72.9	72.6	76.2	75.3	71.8	71.3	69.2	64.2	68.6
Indianapolis, Ind	Feb. 10, 1871	73.6	69.7	67.0	59.4	60.3	67.6	67.8	68.5	68.6	67.3	69.9	73.2	67.5
Indianola, Tex	May 1, 1872	82.1	77.0	79.4	75.7	77.4	75.6	74.8	75.7	76.5	75.7	77.6	81.1	77.5
Jacksonville, Fla	Sept. 11, 1871	74.6	70.6	65.4	67.2	68.3	70.8	71.8	74.4	77.4	74.9	74.8	73.7	71.9
Keokuk, Iowa	July 16, 1871	75.0	71.0	68.5	63.5	65.1	70.2	68.5	67.5	67.7	67.9	70.3	74.3	69.2
Key West, Fla	Nov. 1, 1870	79.7	76.6	70.5	69.3	70.6	70.8	70.3	71.5	74.9	76.4	77.5	78.7	73.9
Kitty Hawk, N. C	Jan. 15, 1875	80.9	76.1	75.4	76.4	78.6	78.1	79.1	80.7	79.7	78.4	76.0	77.8	78.2
Knoxville, Tenn	Jan. 1, 1871	75.4	68.6	63.2	60.7	64.7	72.3	73.6	74.3	72.6	71.4	71.5	75.0	70.2
La Crosse, Wis	Oct. 15, 1872	72.3	70.6	68.7	61.0	59.6	67.5	69.3	67.7	71.1	67.5	71.9	73.3	68.2
Leavenworth, Kans	May 21, 1871	72.7	69.5	64.1	59.9	64.6	65.9	66.7	68.6	62.5	62.8	68.9	69.7	66.2
Lewiston, Idaho	July 1, 1879	68.2	66.2	61.4	62.0	60.5	58.4	40.9	42.4	51.1	66.4	72.2	75.0	60.4
Little Rock, Ark	July 1, 1879	76.3	73.0	65.5	67.8	75.3	75.0	74.5	75.5	75.3	77.5	78.4	71.7	73.5
Los Angeles, Cal	July 1, 1877	62.9	66.3	71.9	70.1	69.1	69.1	69.4	68.9	68.4	64.0	57.8	61.5	67.0
Louisville, Ky	Sept. 11, 1871	71.7	66.7	61.9	58.3	60.4	65.7	66.2	67.0	68.0	67.4	67.6	70.4	66.0
Lynchburg, Va	May 24, 1871	67.8	61.9	55.7	57.2	59.8	66.0	66.2	70.7	70.8	68.4	65.5	65.9	64.3

Mackinaw City, Mich	Aug. 20, 1882	71.0	68.8	64.6	67.7	68.4	73.8	74.7	74.8	78.0	73.4	77.2	80.1	72.8
Macon, Fort, N. C	May 23, 1878	85.3	80.4	75.4	82.3	79.8	83.9	81.6	82.1	88.8	84.6	79.5	79.8	81.4
Maginnis, Fort, Mont	July 14, 1882	55.1	45.7	45.1	51.7	56.0	46.5	38.6	42.0	53.1	64.0	52.8	51.8	49.8
Marquette, Mich	May 1, 1871	74.0	71.9	71.4	65.8	62.5	67.4	66.8	69.8	70.4	70.1	73.9	74.6	70.2
Memphis, Tenn	Feb. 28, 1871	72.7	67.9	61.8	61.3	64.7	68.6	70.2	70.2	70.2	70.8	68.4	70.8	68.0
Milwaukee, Wis	Nov. 1, 1870	79.4	77.1	76.2	70.1	68.4	72.4	73.5	74.8	73.6	72.8	75.1	78.0	74.5
Mobile, Ala	Nov. 7, 1870	78.0	74.4	72.9	72.5	71.0	73.9	75.0	77.2	74.7	74.8	75.4	78.1	74.6
Montgomery, Ala	Nov. 9, 1870	73.3	67.1	64.5	65.6	64.2	68.3	68.5	70.9	69.5	69.1	70.7	73.2	68.8
Moorhead, Minn	Jan. 1, 1881	81.7	79.1	78.7	74.2	68.5	69.7	71.1	72.4	73.5	77.7	79.7	80.8	75.6
Mount Washington, N. H	Dec. 1, 1870	84.4	83.5	85.7	86.2	84.1	83.5	86.7	85.4	84.2	86.8	86.0	88.0	85.3
Nashville, Tenn	Nov. 1, 1870	72.2	68.5	63.8	61.8	61.7	66.5	67.8	68.6	69.5	68.6	70.0	72.2	67.8
New Haven, Conn	Dec. 10, 1872	74.5	72.5	69.9	64.6	66.2	70.5	71.5	74.0	75.4	72.5	71.6	74.4	71.4
New London, Conn	Jan. 10, 1871	73.9	71.7	71.5	68.0	69.4	74.6	75.6	76.4	76.6	73.7	71.3	72.2	72.9
New Orleans, La	Nov. 1, 1870	72.2	69.3	76.0	70.1	70.1	72.3	73.7	73.0	72.0	71.0	71.6	72.8	71.4
New York City	Nov. 1, 1870	72.4	72.0	67.6	64.8	65.0	68.9	70.4	71.1	72.8	69.7	69.6	72.4	69.7
Norfolk, Va	Jan. 1, 1871	75.5	70.6	66.4	68.2	68.8	69.6	70.3	75.6	76.9	74.7	72.7	71.8	71.5
North Platte, Nebr	Sept. 18, 1874	68.9	66.5	62.7	58.6	64.1	62.9	65.0	62.4	61.2	61.9	62.9	69.1	63.9
Olympia, Wash. T	July 1, 1877	85.2	84.6	82.1	78.0	72.5	69.4	67.4	72.8	79.5	84.0	85.3	86.2	78.8
Omaha, Nebr	Nov. 1, 1870	73.2	71.9	67.1	59.3	64.9	68.5	70.2	68.8	68.9	65.8	68.9	72.0	68.3
Oswego, N. Y	Nov. 1, 1870	74.9	73.4	72.7	67.5	65.7	70.1	70.8	70.4	70.9	70.0	70.7	74.9	70.9
Palestine, Tex	Dec. 3, 1881	70.0	71.1	64.5	69.6	72.2	73.2	72.9	70.2	67.9	74.5	71.6	65.4	69.2
Pensacola, Fla	Oct. 27, 1879	80.3	77.2	72.6	78.4	73.9	77.4	77.2	79.4	76.9	78.0	75.5	77.5	76.8
Philadelphia, Pa	Jan. 1, 1871	74.4	68.7	66.0	62.9	63.4	68.2	67.2	71.8	71.4	69.5	68.6	72.8	68.7
Pike's Peak, Colo	Nov. 1, 1873	66.3	67.3	72.3	75.0	70.3	63.5	65.2	66.4	66.7	67.9	66.0	67.9	68.1
Pittsburg, Pa	Nov. 1, 1870	75.5	71.5	68.6	63.4	61.4	66.2	68.9	69.9	71.0	70.7	71.3	76.5	69.9
Port Huron, Mich	July 25, 1874	80.6	78.5	77.9	70.7	67.5	72.6	73.8	72.8	73.8	74.4	79.3	81.8	75.5
Portland, Me	Jan. 15, 1871	72.6	69.5	68.4	62.8	64.7	68.7	70.1	71.6	73.6	70.8	70.8	73.2	69.7
Portland, Oreg	Nov. 1, 1871	78.4	78.3	75.9	70.1	64.9	64.3	68.7	67.4	69.2	77.6	78.4	79.5	72.2
Prescott, Ariz	Nov. 19, 1873	54.2	53.6	46.0	39.7	28.1	26.0	44.4	53.1	42.4	41.8	48.0	55.9	45.6
Provincetown, Mass	Feb. 15, 1882	76.3	75.8	74.7	75.5	77.2	74.2	75.0	78.8	79.9	76.0	74.8	78.6	75.0
Red Bluff, Cal	July 1, 1877	71.6	69.7	61.0	62.5	50.9	36.3	32.9	33.9	40.6	50.5	63.5	74.8	54.2
Rio Grande City, Tex	May 28, 1875	74.0	66.2	72.6	67.3	68.0	67.9	60.1	68.8	66.7	70.9	65.1	68.4	67.9
Rochester, N. Y	Nov. 1, 1870	80.1	76.9	75.7	66.7	62.3	65.7	66.7	67.3	69.6	71.0	75.5	79.9	71.3
Roseburg, Oreg	July 15, 1877	83.3	80.0	75.3	71.6	66.6	63.7	61.6	62.8	66.5	78.3	84.4	85.0	73.2
Sacramento, Cal	July 1, 1877	77.2	74.6	69.3	68.8	62.3	57.3	54.2	54.7	58.9	60.4	68.3	80.1	65.7
Saint Louis, Mo	Nov. 1, 1870	71.2	69.5	66.0	59.7	64.2	68.2	67.9	66.1	64.7	64.9	67.9	72.0	66.9
Saint Michael's, Fort, Alaska	June 28, 1874	96.7	98.2	97.4	95.1	92.8	84.5	81.3	86.5	86.8	88.8	91.4	94.9	91.6
Saint Paul, Minn	Nov. 1, 1870	72.1	70.7	69.0	60.3	60.5	68.0	69.9	71.8	70.7	69.4	72.0	74.3	69.0
Saint Vincent, Minn	Sept. 5, 1880	94.1	87.9	86.9	77.2	69.2	71.8	75.8	79.6	77.7	80.0	83.0	87.4	80.9
Salt Lake City, Utah	Mar. 19, 1874	59.9	57.2	48.1	45.4	39.5	31.9	30.1	30.9	31.4	41.8	51.8	60.0	43.9
San Diego, Cal	Nov. 1, 1871	71.2	74.3	75.5	72.4	78.0	78.8	76.4	77.1	76.4	71.5	66.4	67.2	72.9
Sandusky, Ohio	Aug. 2, 1877	77.1	74.5	74.1	68.0	66.1	68.4	69.6	68.5	71.6	72.1	72.6	76.6	71.6
Sandy Hook, N. J	Dec. 10, 1873	77.2	75.1	74.8	71.8	71.9	74.0	73.7	73.8	75.4	72.1	72.3	74.7	74.0
San Francisco, Cal	Mar. 8, 1871	72.8	73.3	72.3	71.8	72.0	73.8	78.9	80.0	77.5	72.8	71.1	76.0	74.8
Savannah, Ga	Jan. 1, 1871	72.3	69.0	65.9	66.3	60.8	71.1	71.9	76.1	73.3	76.0	72.1	70.8	71.6
Shaw, Fort, Mont	April 1, 1880	73.1	66.4	59.9	58.4	56.6	58.9	51.3	51.4	57.3	66.8	64.9	62.7	60.9
Shreveport, La	Sept. 3, 1871	74.7	70.3	66.5	66.8	69.6	69.7	71.7	69.9	71.0	72.7	72.2	72.6	70.6
Sill, Fort, Ind. T	June 23, 1875	65.8	64.4	58.4	54.7	65.4	65.2	64.5	61.7	62.8	64.6	64.6	67.8	63.2
Sitka, Alaska	Mar. 30, 1881	76.0	74.8	69.2	69.6	74.5	76.7	79.5	79.7	81.1	74.5	76.4	76.1	74.7
Smithville, N. C	Oct. 15, 1875	81.9	77.1	75.5	78.6	76.5	76.4	76.9	78.4	79.0	70.8	77.1	78.8	78.0
Spokane Falls, Wash. T	Feb. 5, 1881	82.2	81.7	74.2	65.6	58.4	58.0	48.8	50.4	62.5	76.4	77.7	77.1	67.8
Springfield, Ill	July 1, 1879	70.8	67.4	63.8	61.4	65.7	70.8	64.1	64.8	64.8	69.5	66.7	69.6	67.1

Table showing the mean relative humidity at stations of the Signal Service, United States Army, for each month and the year, &c.—Continued.

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		Per cent.	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Per cent.*	*Pr. cent.*
Stockton, Fort, Tex	Feb. 26, 1876	54.0	51.9	50.5	45.8	57.8	53.1	51.4	51.9	59.8	58.9	56.9	58.1	54.1
Thomas, Camp, Ariz	Sept. 22, 1877	66.2	61.5	54.4	37.9	32.9	33.6	50.2	58.6	49.0	47.3	54.2	64.5	51.3
Toledo, Ohio	Nov. 1, 1870	75.4	73.2	69.9	68.7	62.5	67.6	68.5	70.8	71.4	69.5	71.0	74.8	69.8
Unalashka, Alaska	Aug. 18, 1878	87.1	86.8	84.0	81.9	79.4	75.8	76.7	79.7	81.8	84.8	80.0	81.8	81.6
Vicksburg, Miss	Sept. 10, 1871	71.4	66.4	64.4	66.3	67.2	70.2	72.0	71.6	71.9	71.6	70.8	70.8	69.5
Washington City	Nov. 1, 1870	73.4	68.3	64.8	62.6	63.5	66.7	66.8	72.2	73.3	71.0	70.6	71.9	68.9
West Las Animas, Colo	Oct. 1, 1881	63.7	58.2	45.2	44.5	52.4	52.8	47.6	52.8	48.7	52.7	55.9	63.4	53.4
Wilmington, N. C	Jan. 1, 1871	72.8	60.2	68.1	68.1	70.6	73.7	75.0	78.6	70.5	75.1	72.8	72.7	72.4
Yankton, Dak	Apr. 1, 1873	66.4	68.5	67.8	64.5	66.6	70.7	70.6	69.6	67.0	64.7	66.0	69.1	67.0
Yuma, Ariz	Nov. 18, 1873	44.6	42.2	41.6	39.8	33.8	35.8	39.3	42.3	40.3	40.2	38.9	44.6	39.4

APPENDIX 6o.

Monthly and annual mean dew point (in degrees Fahrenheit) at stations of the Signal Service, United States Army, for the year ending June 30, 1884.

[Deduced from observations taken at 7 a. m., 3 and 11 p. m., Washington time. The daily means are obtained by dividing the sum of the 7 a. m., 3 and 11 p. m. observations by 3; the monthly means by dividing the sum of the daily means by the number of days in the month.]

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	59.1	54.6	48.5	38.5	32.7	22.4	11.9	23.1	25.5	34.8	44.6	55.0	37.6
Alpena, Mich	54.7	51.0	45.4	34.9	28.0	16.8	5.6	9.0	15.8	26.3	38.7	52.5	31.6
Apache, Fort, Ariz	53.5	55.7	41.7	33.2	24.5	29.2	23.7	30.1	33.2	30.7	36.0	41.5	36.1
Assinaboine, Fort, Mont	42.2	44.9	36.9	27.8	15.2	12.5	6.6	− 0.7	16.9	28.9	38.7	48.2	26.5
Atlanta, Ga	63.8	63.8	58.3	55.6	39.9	36.9	26.4	37.5	41.2	41.8	54.7	61.5	48.4
Atlantic City, N. J	65.4	62.2	57.3	48.4	36.8	30.3	22.3	32.6	33.1	39.1	50.0	60.4	44.8
Augusta, Ga	68.9	[1]67.2	66.9	57.7	44.8	42.5	32.6	43.9	46.3	47.8	60.0	64.8	53.6
Baltimore, Md	64.3	58.7	54.8	47.7	35.8	28.5	21.5	31.9	32.9	36.4	48.5	60.0	43.4
Barnegat City, N. J	66.6	62.4	57.8	48.4	38.0	30.0	22.6	34.8	32.6	37.7	49.9	58.6	44.9
Behring's Island, Behring Sea	43.4	50.0	41.6	33.3	27.3	24.2	21.7	24.8	25.1	27.9	33.3	37.8	32.5
Bennett, Fort, Dak	56.9	56.8	43.2	32.1	17.6	12.4	5.7	0.7	20.0	31.2	42.9	59.3	31.6
Benton, Fort, Mont	44.7	[2]44.5	39.3	27.7	11.6	9.1	6.0	4.3	27.8	[5]27.9	39.7	49.1	27.6
Bismarck, Dak	52.5	52.8	41.0	[2]33.3	[2]20.4	4.7	0.5	− 3.5	14.1	29.9	42.6	59.4	29.0
Block Island, R. I	63.9	60.3	54.4	45.7	39.6	29.5	24.2	31.2	30.1	38.1	48.1	57.1	43.5
Boise City, Idaho	([3])	([3])	([3])	37.2	31.7	([3])	22.9	24.6	33.4	38.0	48.8	52.5	....
Boston, Mass	60.7	55.1	49.9	40.6	33.1	22.8	16.1	27.0	26.8	37.2	45.7	56.8	39.3
Brownsville, Tex	74.4	73.2	70.2	70.7	62.5	56.6	43.5	56.4	62.1	62.7	69.4	72.3	64.5
Buffalo, N. Y	58.9	55.7	48.7	39.9	33.7	23.0	14.0	22.0	23.4	32.2	43.6	55.0	37.6
Buford, Fort, Dak	50.1	51.9	38.4	31.9	15.8	[4]5.5	3.2	− 5.1	14.9	29.3	[5]39.7	52.8	27.4
Cairo, Ill	68.1	64.8	56.7	53.2	39.3	32.5	21.2	34.4	36.7	43.7	55.3	67.7	47.8
Canby, Fort, Wash. T	....	([6])	[7]54.8	47.1	44.6	40.2	37.1	33.2	39.0	45.8	47.4	51.2	....
Cape Henry, Va	67.7	66.8	63.1	54.8	42.0	37.2	29.8	41.1	40.5	42.9	55.1	63.8	50.4
Cape May, N. J	[7]67.2	[2]63.1	[2]58.5	48.9	39.9	33.9	26.0	35.0	35.0	41.6	51.6	60.9	46.8
Cape Mendocino, Cal	49.1	50.8	51.0	46.4	43.6	43.3	41.5	38.8	41.1	44.1	47.3	50.3	45.6
Cedar Keys, Fla	74.4	74.3	70.2	69.6	57.8	57.7	46.5	56.8	59.6	58.7	67.1	69.2	63.4
Charleston, S. C	76.7	73.7	69.4	64.9	51.0	49.7	39.3	50.9	[1]52.1	52.2	[1]65.5	68.9	59.5
Charlotte, N. C	64.6	61.8	58.2	53.9	38.2	35.8	29.2	40.9	42.0	41.0	55.4	61.5	48.5

[1] Thirty days only.
[2] Twenty-eight days only.
[3] Record incomplete.
[4] Twenty-seven days only.
[5] Twenty-six days only.
[6] Observations commenced Sept. 1, 1883.
[7] Twenty-nine days only.

Monthly and annual mean dew point (in degrees Fahrenheit) at stations of the Signal Service, United States Army, &c.—Continued.

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Chattanooga, Tenn	64.5	65.0	60.1	57.4	39.8	35.5	25.8	39.2	40.8	44.6	55.8	64.3	49.3
Cheyenne, Wyo	41.9	43.3	29.0	23.4	12.6	14.4	11.0	10.5	16.0	22.8	32.9	42.0	25.1
Chicago, Ill	60.0	56.8	49.7	42.2	30.5	21.5	10.5	18.9	24.4	33.3	44.4	[1]55.8	37.8
Chincoteague, Va	68.5	64.9	61.7	52.5	41.3	34.1	27.9	38.1	36.8	41.2	53.9	64.0	48.7
Cincinnati, Ohio	62.8	58.2	53.8	49.0	38.0	32.3	[2]21.0	34.9	34.7	40.9	51.0	62.9	44.9
Cleveland, Ohio	58.7	54.2	47.8	40.9	31.1	24.8	13.9	25.3	26.6	32.9	45.7	57.3	38.3
Columbus, Ohio	60.1	54.9	50.2	45.1	32.3	25.7	14.0	29.5	29.2	37.5	48.3	59.7	40.5
Concho, Fort, Tex	59.9	61.0	59.0	58.2	42.9	38.0	28.4	36.0	38.8	43.4	56.7	64.3	48.9
Custer, Fort, Mont	([8])	45.7	41.5	32.6	[1]21.2	17.9	8.7	1.7	20.3	30.4	41.2	54.1	......
Davenport, Iowa	62.8	58.4	48.7	41.1	30.4	20.1	[3]7.2	18.1	24.9	36.5	47.9	60.6	38.1
Davis, Fort, Tex	55.0	52.0	48.9	44.0	33.5	28.7	23.3	30.2	33.4	34.4	42.0	53.7	39.9
Dayton, Wash. T	43.6	46.1	40.0	35.9	34.1	27.9	25.1	18.0	31.8	37.3	42.4	49.2	36.0
Deadwood, Dak	52.8	52.1	44.3	[1]33.4	24.4	17.8	14.4	9.0	20.9	28.5	38.2	51.0	32.2
Delaware Breakwater, Del	66.7	64.5	61.2	51.7	40.5	32.8	25.8	35.7	35.2	39.9	51.1	61.4	47.2
Denver, Colo	48.4	47.5	38.0	29.3	20.7	19.4	15.3	14.3	22.1	27.1	37.2	47.2	30.5
Des Moines, Iowa	62.8	59.1	47.1	40.0	26.8	17.0	6.4	11.5	24.4	35.0	45.5	60.1	36.3
Detroit, Mich	60.8	55.3	[1]49.9	42.0	34.9	26.5	14.0	24.4	27.5	32.5	44.6	58.4	39.2
Dodge City, Kans	59.9	63.6	51.6	40.1	27.4	24.0	18.0	18.4	26.2	31.9	46.8	61.6	38.7
Dubuque, Iowa	60.5	55.5	46.3	37.4	25.0	14.7	0.9	12.0	21.0	32.6	43.9	59.0	34.1
Duluth, Minn	52.8	53.8	45.3	35.6	22.6	9.3	−0.6	0.3	13.3	27.5	36.9	50.8	29.0
Eastport, Me	52.9	52.2	45.9	36.1	31.2	16.8	11.0	19.5	21.2	34.0	38.8	48.0	34.0
Elliott, Fort, Tex	59.7	56.8	50.7	45.6	28.1	25.6	18.3	22.5	25.5	31.6	47.1	[4]62.3	39.5
El Paso, Tex	56.1	56.5	49.9	41.4	31.3	29.4	24.0	[5]28.4	24.4	23.8	28.6	43.4	36.4
Erie, Pa	60.9	56.2	49.8	44.8	34.6	27.9	16.1	25.7	26.6	33.7	45.4	57.3	39.9
Escanaba, Mich	55.9	52.9	45.6	35.1	25.3	14.1	2.0	2.9	13.8	26.6	38.2	52.9	30.4
Fort Smith, Ark	69.9	66.2	55.0	55.9	40.0	32.6	21.0	32.8	38.2	44.5	56.2	65.8	48.2
Galveston, Tex	73.5	73.0	68.2	69.1	56.2	52.6	40.3	53.1	57.2	59.8	68.1	71.9	61.9
Grand Haven, Mich	60.2	57.1	49.5	40.0	34.3	25.1	15.1	19.9	25.2	31.5	43.9	[1]56.8	38.2
Grant, Fort, Ariz	54.5	56.3	42.0	32.5	28.0	29.2	23.8	30.8	29.5	24.8	28.6	33.0	34.4
Hatteras, N. C	71.3	70.1	67.6	61.4	49.2	48.7	36.2	48.4	46.4	47.1	60.7	67.4	55.8
Helena, Mont	55.4	47.5	40.5	32.0	22.2	[2]18.5	([10])	7.8	20.0	28.0	34.9	45.4	......
Huron, Dak	60.0	58.8	46.4	34.3	19.9	8.7	1.5	−1.1	19.7	33.0	43.8	60.2	32.1
Indianapolis, Ind	61.9	56.8	50.5	44.5	31.9	24.5	12.2	26.9	28.4	35.1	47.6	59.7	40.0
Indianola, Tex	74.6	73.8	70.8	70.4	59.2	58.2	39.0	53.3	58.6	61.0	68.7	72.7	62.9
Jacksonville, Fla	73.6	71.9	68.2	66.8	54.0	52.6	44.2	52.9	56.2	55.7	66.2	69.3	61.0
Keokuk, Iowa	64.7	60.4	49.7	42.5	31.5	22.6	18.0	21.4	29.2	38.5	49.2	62.8	40.5

Key West, Fla	73.4	73.9	74.0	72.7	68.1	64.5	61.3	64.1	65.8	[1]64.7	69.7	72.5	68.7
Kitty Hawk, N. C	68.9	67.7	65.0	57.7	44.0	38.9	32.0	43.2	41.3	42.5	56.7	64.7	51.9
Knoxville, Tenn	63.8	62.1	56.8	56.3	37.1	33.5	23.6	37.9	38.8	41.7	53.7	62.4	47.8
La Crosse, Wis	60.2	55.6	47.1	35.7	28.2	16.9	4.3	11.0	20.3	[1]32.1	42.6	58.6	34.4
Leavenworth, Kans	64.6	62.2	51.0	43.7	30.7	24.2	12.4	17.2	30.1	39.1	48.6	61.6	40.4
Lewiston, Idaho	42.2	[2]49.2	41.4	35.9	32.3	26.3	23.0	18.8	32.6	40.0	44.9	55.6	36.8
Little Rock, Ark	71.0	67.9	58.7	[2]58.8	44.1	38.3	26.0	38.7	41.2	48.8	59.9	68.9	51.9
Los Angeles, Cal	59.3	58.6	57.4	49.4	41.9	42.1	38.4	44.0	46.4	50.1	53.3	56.7	49.8
Louisville, Ky	65.1	59.6	54.3	50.4	38.4	32.6	20.5	34.7	35.2	41.3	57.2	65.8	46.3
Lynchburg, Va	63.0	58.4	55.3	49.5	33.9	28.6	20.9	33.9	35.2	42.3	57.0	[1]64.2	45.2
Mackinaw City, Mich	53.6	53.3	46.5	35.9	29.5	20.3	7.8	7.3	16.2	27.8	38.8	53.1	32.5
Macon, Fort, N. C	72.7	70.9	67.8	60.5	47.3	42.8	34.9	48.0	46.6	48.5	62.6	67.8	55.9
Maginnis, Fort, Mont	35.6	35.7	32.3	24.7	13.4	10.4	5.3	−5.8	9.6	18.1	31.7	40.7	21.0
Marquette, Mich	50.9	49.9	42.7	33.3	22.4	12.7	0.1	1.9	12.9	25.4	35.9	47.1	27.9
Memphis, Tenn	69.2	66.4	57.6	58.4	42.9	[2]37.4	26.4	39.2	38.4	45.5	[2]57.3	67.2	50.5
Milwaukee, Wis	57.4	55.8	48.8	40.1	28.9	19.5	7.6	17.3	23.8	32.1	42.6	53.8	35.6
Mobile, Ala	72.6	71.4	65.7	63.9	49.2	48.0	35.4	48.2	52.3	54.8	64.9	68.0	57.9
Montgomery, Ala	68.3	68.5	61.0	58.5	45.1	43.7	32.5	43.8	47.5	49.2	59.7	66.6	53.7
Moorhead, Minn	[2]54.7	51.9	43.8	33.7	16.1	[2]1.9	−6.0	−6.8	11.0	28.8	39.0	57.2	27.1
Mount Washington, N. H	44.3	41.6	34.4	[2]27.1	16.5	[6]6.7	2.2	10.9	8.6	23.3	30.4	41.7	24.0
Nashville, Tenn	67.7	65.2	58.2	56.6	42.3	36.7	24.7	39.0	39.5	45.5	55.2	65.2	49.6
New Haven, Conn	60.6	56.8	51.0	39.9	32.3	22.6	15.6	26.4	25.3	34.5	44.6	55.8	38.8
New London, Conn	62.3	58.6	53.5	43.6	35.8	24.0	19.1	28.7	28.9	36.3	45.2	56.9	41.1
New Orleans, La	72.3	71.3	66.6	66.3	51.7	50.6	37.7	50.0	54.3	56.6	66.0	69.2	59.4
New York City	62.0	56.0	52.7	42.9	34.7	25.9	20.1	29.3	29.3	36.3	47.3	57.5	41.2
Norfolk, Va	68.6	66.2	63.1	55.3	42.2	36.9	29.6	42.5	41.4	42.3	55.4	63.9	50.6
North Platte, Nebr	58.6	59.2	[1]48.3	36.5	24.5	[1]21.7	12.0	11.8	26.5	34.0	46.4	59.6	36.6
Olympia, Wash. T	45.4	48.6	[5]50.1	43.7	41.0	35.3	34.2	28.5	36.8	44.1	45.9	50.0	42.0
Omaha, Nebr	63.4	62.7	51.3	41.6	29.3	19.0	9.5	11.5	27.1	38.2	50.6	63.3	39.0
Oswego, N. Y	58.3	56.0	48.7	39.1	31.4	20.8	11.4	21.8	24.5	32.9	44.7	56.4	37.2
Palestine, Tex	70.7	66.7	59.3	[6]60.3	48.5	42.7	30.1	41.9	47.4	52.9	63.1	68.9	54.4
Pensacola, Fla	73.5	72.8	66.5	64.2	48.2	49.3	36.5	50.5	55.1	56.0	66.2	69.1	59.0
Philadelphia, Pa	69.3	66.2	59.2	48.8	38.8	30.7	21.9	34.2	34.9	42.8	57.2	63.5	47.3
Pike's Peak, Colo	29.8	30.3	23.9	12.2	7.3	3.3	−8.5	−2.2	−0.9	3.4	17.4	25.0	12.2
Pittsburg, Pa	61.7	57.6	51.3	45.8	36.4	31.0	19.8	33.7	32.1	36.5	49.4	60.8	43.0
Port Huron, Mich	59.1	55.6	48.6	39.4	33.0	21.5	10.5	18.9	23.3	31.3	43.6	55.5	36.7
Portland, Me	59.2	55.5	48.5	37.8	32.3	20.1	15.3	23.0	23.6	35.6	41.4	54.1	37.2
Portland, Oreg	52.7	52.8	50.5	44.6	42.5	[2]36.8	31.8	30.4	37.0	42.7	46.2	50.9	43.2
Prescott, Ariz	52.2	53.8	36.1	31.0	23.1	28.3	22.4	28.7	31.3	32.1	37.0	41.0	34.8
Provincetown, Mass	60.4	57.9	52.3	41.4	36.6	27.3	22.3	30.1	28.8	(9)	....	....	....
Red Bluff, Cal	50.0	45.2	48.8	42.3	39.7	37.6	36.5	35.4	42.0	46.6	50.5	52.2	48.5
Rio Grande City, Tex	....	....	....	[7]66.6	57.5	53.0	37.2	50.4	56.2	57.9	65.7	67.9	....
Rochester, N. Y	....	....	....	[8]39.9	31.1	22.3	12.7	21.3	23.5	30.9	42.9	55.2	....
Roseburg, Oreg	48.4	49.5	48.1	43.1	40.1	35.6	33.5	32.3	33.0	42.9	46.3	50.0	42.3
Sacramento, Cal	56.3	[2]54.4	54.6	48.0	[1]43.4	40.7	40.7	[5]40.5	[2]45.2	48.2	53.1	[1]55.1	48.4
Saint Louis, Mo	65.9	62.7	58.6	49.4	38.2	31.0	17.9	28.9	35.0	41.8	52.5	64.8	45.1
Saint Michael's, Fort, Alaska	47.5	45.7	40.6	30.3	10.9	2.8	2.4	10.1	12.2	20.3	30.7	40.6	24.5

[1] 29 days only.
[2] 30 days only.
[3] Observations re-commenced July 21, 1883.
[4] 27 days only.
[5] 28 days only.
[6] 25 days only.
[7] Observations re-commenced October 1, 1883.
[8] Observations re-commenced October 10, 1883.
[9] Observations discontinued April 1, 1884.
[10] Record incomplete.

Monthly and annual mean dew-point (in degrees Fahrenheit) at stations of the Signal Service, United States Army, &c.—Continued.

Stations.	1883.						1884.						Annual mean.
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.	
	°	°	°	°	°	°	°	°	°	°	°	°	°
Saint Paul, Minn	59.0	55.4	45.9	34.8	21.5	10.5	6.0	4.5	17.8	32.8	47.4	62.0	33.1
Saint Vincent, Minn	52.8	54.2	43.8	32.4	12.3	−2.4	−10.6	−18.1	5.8	29.0	41.5	58.8	25.4
Salt Lake City, Utah	42.1	45.6	39.8	31.4	24.2	19.8	14.7	17.9	27.0	31.4	38.3	41.0	31.1
San Diego, Cal	59.9	66.8	58.9	51.4	45.1	43.6	40.4	45.9	48.3	51.0	54.9	57.1	51.4
Sandusky, Ohio	([1])	57.5	51.8	44.0	34.4	24.7	12.4	23.7	26.7	33.8	47.7	60.2	......
Sandy Hook, N. J	63.8	60.5	54.9	45.5	37.8	27.7	19.6	30.5	30.6	39.6	48.1	57.8	43.0
Sanford, Fla	73.0	72.1	69.6	68.8	59.7	54.2	48.3	56.3	58.6	57.5	65.7	69.0	62.7
San Francisco, Cal	52.4	52.6	53.7	50.4	47.2	44.2	44.5	42.5	47.1	48.4	50.2	[2]52.6	48.8
Savannah, Ga	72.1	71.0	66.0	61.4	47.8	46.6	[3]35.2	47.7	49.2	49.6	62.8	[4]67.1	56.4
Shaw, Fort, Mont	39.1	41.1	36.3	28.7	18.2	15.3	12.4	2.9	17.9	25.7	32.8	43.5	26.2
Shreveport, La	70.1	66.8	58.8	60.2	46.0	40.7	28.7	42.1	45.1	50.4	63.8	69.7	58.5
Sitka, Alaska	45.8	47.8	46.8	39.0	25.9	28.8	30.6	24.3	30.1	33.0	38.4	44.4	36.2
Smithville, N. C	72.8	69.5	66.6	59.9	46.2	44.2	36.5	48.9	48.0	50.0	64.6	67.6	56.2
Spokane Falls, Wash. T	45.1	45.9	48.4	34.7	32.6	21.9	[5]19.3	15.5	29.6	39.1	43.1	50.3	35.0
Springfield, Ill	63.3	58.1	48.7	44.2	31.7	24.9	18.3	24.8	30.8	38.3	49.3	62.2	40.8
Stockton, Fort, Tex	62.9	57.8	57.0	52.0	38.5	33.9	25.7	32.9	35.7	37.8	49.5	61.3	45.4
Tatoosh Island, Wash. T	......	......	......	[6]44.9	42.1	39.1	37.0	31.3	36.8	43.9	45.9	49.4	......
Thomas, Camp, Ariz	56.7	59.8	46.4	33.3	30.8	35.3	27.6	36.9	37.8	34.1	40.7	41.3	40.1
Toledo, Ohio	61.3	55.9	50.1	41.6	31.7	24.2	14.0	24.6	27.1	33.5	47.8	60.8	39.3
Unalashka, Alaska	43.0	45.2	39.4	35.8	29.3	24.4	29.7	31.7	27.4	30.0	31.6	48.4	34.7
Vicksburg, Miss	71.2	68.9	62.1	62.0	46.9	44.2	31.6	44.8	45.9	51.3	62.5	68.2	54.9
Washington City	64.8	59.6	55.9	49.0	37.6	29.2	23.2	34.2	33.1	36.7	51.4	61.7	44.7
West Las Animas, Colo	45.6	51.9	42.3	31.3	16.1	19.9	12.1	14.5	19.2	25.5	39.1	51.1	30.7
Wilmington, N. C	72.1	69.1	65.8	58.9	44.5	41.8	34.6	47.5	46.3	46.1	61.5	64.6	54.4
Yankton, Dak	61.4	60.9	48.0	37.2	23.0	14.5	5.8	3.7	21.8	34.1	46.3	62.3	34.9
Yuma, Ariz	69.5	67.4	55.5	44.7	[7]32.5	([8])	27.5	38.4	39.1	[2]42.0	45.8	52.6	......

[1] Observations re-commenced July 20, 1883.
[2] 29 days only.
[3] 30 days only.
[4] 27 days only.
[5] 26 days only.
[6] Observations commenced October 1, 1883.
[7] 28 days only.
[8] No record.

APPENDIX 61.

Average dew-point (in degrees Fahrenheit) at stations of the Signal Service, United States Army, for each month and the year, computed from January 1, 1882, *to December* 31, 1883.

[The daily mean is obtained by dividing the sum of the three telegraphic observations by three; the monthly mean by dividing the sum of the daily means by the number of days in the month.]

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Albany, N. Y	15.8	20.0	22.0	30.4	40.6	55.5	59.2	56.2	51.4	42.0	30.9	21.4	37.1
Alpena, Mich	11.1	15.8	16.0	26.0	33.5	49.4	54.2	55.8	48.1	38.7	29.0	18.1	33.0
Apache, Fort, Ariz	23.2	26.6	31.4	25.7	31.1	38.8	58.8	56.7	42.2	30.1	26.0	25.8	34.2
Assinaboine, Fort, Mont	—0.2	4.3	15.6	26.6	35.0	44.2	43.8	44.1	37.2	29.2	15.8	11.6	25.6
Atlanta, Ga	38.1	41.4	39.6	50.0	52.8	64.6	64.4	65.6	60.0	55.6	39.2	33.4	50.4
Atlantic City, N. J	24.7	29.5	29.8	39.4	48.2	60.5	65.8	64.4	60.3	52.0	36.2	28.0	44.9
Augusta, Ga	41.8	45.1	42.6	53.2	56.4	67.8	68.2	68.4	66.0	57.6	43.4	38.6	54.1
Baltimore, Md	25.3	29.4	28.6	38.8	48.0	60.8	68.8	61.6	57.4	50.4	34.5	27.2	43.8
Barnegat City, N. J	26.5	29.7	28.9	38.0	47.8	60.5	66.1	64.0	60.1	51.7	36.9	28.6	44 9
Bennett, Fort, Dak	4.7	13.2	21.8	33.9	42.6	55.2	57.8	57.4	45.0	34.8	20.6	12.8	33.2
Benton, Fort, Mont	5.4	9.6	19.0	27.6	37.2	47.9	44.4	46.8	39.6	29.6	15.4	11.6	27.8
Bismarck, Dak	—1.2	7.8	15.0	30.2	36.2	52.1	54.0	54.6	43.6	34.4	21.0	6.0	29.5
Block Island, R. I	23.8	25.8	26.4	35.3	44.7	58.0	63.4	61.4	57.2	48.3	37.0	28.4	42.4
Boise City, Idaho	19.2	20.2	31.2	35.4	39.8	44.4	46.8	45.5	41.0	36.7	29.4	26.7	34.4
Boston, Mass	18.0	20.6	22.7	31.6	41.7	55.4	59.2	55.9	52.4	43.0	30.9	22.6	37.8
Brownsville, Tex	53.8	57.6	62.8	67.2	70.6	75.0	75.0	73.2	69.2	69.6	60.4	54.6	65.8
Buffalo, N. Y	19.2	22.6	22.0	31.4	39.6	53.6	58.4	57.5	50.3	42.5	32.2	23.2	37.7
Buford, Fort, Dak	—2.6	4.8	15.2	30.0	37.8	51.2	52.1	52.8	40.2	33.4	18.6	7.2	28.4
Cairo, Ill	29.8	36.5	37.6	47.8	53.3	66.6	67.2	65.8	59.1	54.8	39.9	31.3	49.2
Cape Henry, Va	34.2	37.9	36.2	45.3	52.8	64.4	68.2	68.0	64.5	57.4	41.4	34.4	50.4
Cape May, N. J	28.6	32.4	33.5	41.6	50.3	61.8	67.0	64.6	60.6	53.0	38.8	32.4	47.0
Cape Mendocino, Cal	38.7	36.4	44.3	42.4	45.6	48.4	49.1	50.4	50.6	47.6	43.2	43.8	45.0
Cedar Keys, Fla	53.8	54.9	54.0	63.8	63.4	72.2	73.2	73.2	69.8	67.4	56.0	52.4	62.8
Charleston, S. C	47.0	49.6	48.2	58.2	61.6	71.0	74.4	73.2	69.2	63.2	49.1	45.4	59.2
Charlotte, N. C	34.4	33.0	35.4	47.4	51.7	62.6	68.8	68.6	59.7	53.8	37.1	32.0	48.4
Chattanooga, Tenn	35.8	39.2	37.8	48.6	53.0	65.0	65.1	66.0	60.8	57.0	39.7	32.2	50.0
Cheyenne, Wyo	6.2	8.6	13.4	21.4	30.6	42.3	40.6	40.5	26.8	22.0	11.0	12.0	23.0
Chicago, Ill	16.4	22.5	25.5	35.0	41.8	55.4	58.5	60.0	52.2	45.4	32.4	20.2	38.8
Chincoteague, Va	30.7	33.6	33.0	41.6	51.4	64.3	68.0	66.4	63.0	55.2	39.8	31.6	48.2
Cincinnati, Ohio	27.6	34.1	32.9	42.0	49.0	61.2	62.0	61.2	55.6	51.0	37.7	29.8	45.4
Cleveland, Ohio	19.9	25.0	25 0	32.2	41.6	54.8	58.0	57.6	51.4	43.3	31.4	23.9	38.6
Columbus, Ohio	21.6	28.4	27.8	37.0	45.6	58.0	59.0	58.4	52.2	46.7	32.4	24.1	41.0

Average dew-point (in degrees Fahrenheit) at stations of the Signal Service, United States Army, for each month and the year, &c.—Continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Concho, Fort, Tex	32.8	40.8	46.6	44.8	54.2	64.8	62.0	63.4	58.2	56.6	42.6	34.4	50.1
Custer, Fort, Mont	10.6	17.0	22.0	31.7	41.7	53.7	47.8	45.7	39.2	31.7	20.3	16.0	31.0
Davenport, Iowa	10.2	19.6	24.8	37.6	45.4	59.4	61.1	60.6	51.6	44.6	31.4	19.0	38.8
Davis, Fort, Tex	25.2	28.8	31.4	27.7	37.8	49.0	54.7	53.9	49.4	42.0	33.6	26.6	38.3
Dayton, Wash. T	23.7	17.8	33.3	34.4	41.0	47.0	46.2	47.0	41.6	36.8	32.2	30.6	36.0
Deadwood, Dak	12.8	15.5	24.2	30.8	33.4	48.6	51.6	51.0	41.4	32.0	24.2	19.2	32.5
Delaware Breakwater, Del	30.0	33.2	33.0	41.3	50.2	61.8	66.3	65.6	62.3	54.8	39.9	30.8	47.4
Denver, Colo	14.0	14.0	21.0	26.8	36.4	46.3	47.4	46.2	36.4	28.8	19.9	18.6	29.6
Des Moines, Iowa	8.9	18.0	25.0	33.2	45.0	58.3	60.8	60.1	49.7	42.5	28.0	16.2	37.6
Detroit, Mich	20.1	25.8	27.2	34.0	42.6	56.7	59.4	59.2	52.6	45.0	34.4	25.6	40.2
Dodge City, Kans	17.6	19.0	26.6	35.2	45.0	58.7	59.4	59.8	49.3	40.2	25.2	21.0	38.1
Dubuque, Iowa	5.8	15.2	22.5	33.3	41.4	55.6	58.5	58.4	49.7	41.5	27.8	13.9	35.3
Duluth, Minn	2.2	11.5	17.0	27.9	34.2	47.6	52.9	55.2	48.0	38.3	24.8	9.9	30.8
Eastport, Me	11.3	14.2	18.2	27.0	36.4	47.6	53.2	52.6	47.3	39.0	29.3	17.6	32.8
Elliott, Fort, Tex	13.0	18.2	28.2	34.6	44.0	55.9	59.4	57.4	49.8	44.1	27.3	22.1	37.8
El Paso, Tex	23.8	29.8	30.1	24.8	32.8	43.9	56.4	56.8	49.4	36.4	33.8	27.7	37.2
Erie, Pa	21.1	25.4	25.2	34.4	42.6	56.0	59.8	59.0	52.4	46.3	33.6	26.2	40.2
Escanaba, Mich	8.8	18.3	15.2	26.2	34.2	49.4	55.6	55.8	48.5	39.2	27.0	16.0	32.4
Fort Smith, Ark	25.8	30.3	33.9	46.0	55.4	67.4	68.2	65.8	58.0	56.4	40.4	31.2	24.0
Galveston, Tex	50.6	53.6	58.4	63.6	66.2	73.8	74.1	73.8	69.0	68.5	56.2	51.2	63.2
Grand Haven, Mich	19.6	24.4	25.2	32.3	40.0	54.0	58.6	59.8	51.7	43.6	33.4	24.3	38.9
Grant, Fort, Ariz	24.3	28.8	29.1	23.6	29.2	41.0	53.2	57.1	43.8	32.0	29.0	28.1	35.0
Hatteras, N. C	42.0	43.4	42.0	50.7	57.8	68.8	71.8	71.1	68.1	62.0	47.7	41.2	55.6
Helena, Mont	12.6	12.2	22.5	30.1	36.2	46.2	49.0	46.2	41.1	30.6	22.8	19.6	30.8
Huron, Dak	—0.8	9.0	18.8	33.8	41.8	55.0	58.2	58.4	46.8	36.1	20.8	7.1	32.0
Indianapolis, Ind	21.2	28.6	28.8	39.6	46.4	59.6	61.3	60.9	53.5	47.0	33.1	23.8	42.0
Indianola, Tex	49.7	58.8	60.0	65.0	68.0	74.8	74.9	74.0	70.2	69.6	57.6	51.6	64.0
Jacksonville, Fla	52.2	53.1	50.2	61.3	62.1	71.0	72.8	72.0	68.6	65.8	52.8	49.2	61.0
Keokuk, Iowa	15.5	22.3	28.2	40.6	47.4	60.8	62.6	61.9	52.2	45.6	32.9	21.8	41.0
Key West, Fla	65.8	66.1	63.4	68.2	68.6	73.2	73.6	74.1	73.8	72.6	66.4	64.4	69.2
Kitty Hawk, N. C	37.3	40.1	37.6	46.8	55.2	66.4	69.6	69.0	65.8	58.9	43.3	36.4	52.2
Knoxville, Tenn	34.5	37.6	35.0	45.4	51.2	63.4	64.4	63.8	58.8	55.6	37.8	30.4	48.2
La Crosse, Wis	6.4	15.6	21.3	32.2	38.2	53.2	58.0	58.4	49.6	39.6	28.4	14.6	34.6
Leavenworth, Kans	17.8	24.8	29.3	39.6	46.6	61.0	62.5	61.6	51.2	45.6	32.5	24.2	41.4
Lewiston, Idaho	21.1	17.3	32.6	34.8	41.0	45.2	44.4	46.8	41.8	37.4	31.0	28.6	35.2
Little Rock, Ark	34.9	41.5	43.1	52.5	57.7	69.0	69.9	68.7	61.6	59.8	44.8	35.8	53.2
Los Angeles, Cal	36.6	36.8	45.8	45.4	49.6	55.4	57.4	58.0	56.0	48.7	41.2	39.8	47.6
Louisville, Ky	27.9	32.8	32.3	41.8	50.9	63.5	63.9	62.6	56.6	52.4	38.0	29.4	46.0
Lynchburg, Va	27.2	31.3	28.4	41.0	48.0	60.8	62.6	61.4	57.8	51.1	33.0	25.4	44.0

Mackinaw City, Mich	8.1	6.5	7.5	25.8	38.8	49.6	53.6	53.8	49.2	39.8	29.8	20.4	30.9
Macon, Fort, N. C	41.6	44.8	43.4	58.5	60.8	69.6	72.6	72.2	68.2	62.0	46.8	40.1	56.2
Maginnis, Fort, Mont	0.2	0.4	11.8	32.0	39.0	56.2	65.6	58.2	53.6	25.6	14.6	11.4	20.9
Marquette, Mich	7.8	11.7	18.0	25.6	30.8	44.4	51.3	52.8	46.8	36.9	25.2	14.6	30.0
Memphis, Tenn	34.6	40.0	40.5	50.4	55.6	67.6	68.0	67.2	60.0	58.3	43.4	34.8	51.6
Milwaukee, Wis	14.0	21.1	21.5	32.8	38.8	53.2	56.8	59.0	51.5	43.6	31.1	19.1	37.1
Mobile, Ala	48.8	50.6	51.0	59.6	60.8	71.8	71.6	71.8	66.0	63.3	49.2	44.6	59.1
Montgomery, Ala	43.6	46.6	44.4	54.8	56.0	67.8	68.0	60.2	62.1	58.6	44.8	39.9	54.6
Moorhead, Minn	−5.0	5.0	11.8	31.0	38.1	50.2	55.2	55.0	45.4	36.0	18.2	1.6	28.6
Mount Washington, N. H	−1.7	2.8	4.0	15.3	27.2	39.8	44.0	42.6	35.5	27.3	18.2	5.8	21.3
Nashville, Tenn	34.1	38.5	37.9	47.4	53.1	65.4	66.4	65.8	59.4	56.2	41.5	33.6	50.0
New Haven, Conn	17.4	20.2	21.8	31.8	42.5	56.4	60.8	57.8	53.7	43.7	30.2	21.7	38.2
New London, Conn	19.6	24.2	25.6	34.6	43.9	57.4	61.6	59.3	55.8	46.1	32.9	22.7	40.3
New Orleans, La	50.7	52.6	52.8	61.4	63.0	71.8	71.8	71.8	66.8	65.2	51.8	46.5	60.5
New York City	22.6	26.7	27.2	35.5	45.2	58.2	62.2	59.0	56.1	47.0	34.2	25.4	41.6
Norfolk, Va	33.9	37.2	34.8	45.8	53.8	64.7	68.8	67.8	64.2	57.1	41.1	33.6	50.2
North Platte, Nebr	12.0	15.2	23.7	34.4	43.0	56.4	58.4	57.6	47.6	36.6	23.0	19.8	35.6
Olympia, Wash. T	32.4	29.7	37.8	40.0	44.2	47.6	47.5	50.1	49.0	43.8	38.3	36.8	41.4
Omaha, Nebr	10.8	18.1	24.7	37.3	45.1	58.7	62.0	62.4	52.6	42.6	28.6	16.9	38.3
Oswego, N. Y	15.7	20.8	21.6	30.6	39.8	54.6	58.4	58.0	51.3	42.2	30.6	21.6	37.1
Palestine, Tex	32.8	37.6	47.4	53.1	60.8	69.2	70.0	67.6	61.0	60.2	47.6	39.6	53.9
Pensacola, Fla	50.4	52.8	51.9	61.7	62.2	72.8	72.4	73.2	67.3	64.2	40.3	45.5	60.4
Philadelphia, Pa	24.4	28.6	29.0	39.6	51.0	63.1	65.8	64.6	59.3	50.2	35.8	28.4	45.0
Pike's Peak, Colo	−5.2	−0.7	5.7	8.8	15.8	25.4	29.6	30.2	23.5	13.6	7.0	2.0	13.0
Pittsburg, Pa	24.4	28.8	27.4	36.6	46.0	57.8	60.4	59.4	53.8	47.0	34.1	27.8	42.0
Port Huron, Mich	16.8	21.9	23.6	32.1	39.2	53.6	57.8	58.6	51.2	42.4	32.5	21.8	37.5
Portland, Me	14.6	17.5	19.9	29.2	39.4	53.0	58.8	56.7	50.2	41.1	30.4	20.2	35.9
Portland, Oreg	33.8	28.2	38.6	39.0	42.9	49.8	52.3	51.8	50.4	45.3	39.3	38.7	42.5
Prescott, Ariz	17.3	22.3	26.3	21.2	25.5	33.8	50.9	54.6	37.5	28.6	24.6	24.9	30.6
Provincetown, Mass	21.6	22.0	25.6	34.0	43.4	56.1	61.2	59.6	54.8	45.0	34.8	26.8	39.9
Red Bluff, Cal	32.4	33.2	40.0	40.2	42.9	47.6	49.4	46.0	45.4	43.6	40.6	38.4	41.6
Rio Grande City, Tex	54.8	54.5	59.9	62.0	68.5	70.7	68.4	70.5	68.3	66.6	57.5	53.0	62.5
Rochester, N. Y	18.6	22.4	22.6	31.2	39.6	52.0	56.1	58.4	52.7	42.4	30.6	22.6	38.3
Roseburg, Oreg	32.9	31.8	33.2	38.2	41.8	47.4	49.1	48.8	47.0	43.4	37.9	37.5	41.2
Sacramento, Cal	35.6	36.6	43.4	43.1	49.0	54.2	55.4	54.0	53.8	48.4	42.6	41.6	46.5
Saint Louis, Mo	22.5	31.4	35.0	47.0	54.8	65.4	66.0	66.3	56.8	52.6	40.0	29.6	47.8
Saint Michael's, Fort, Alaska	16.2	9.9	15.7	13.6	34.4	41.7	49.0	47.1	40.6	30.2	14.7	−0.8	25.9
Saint Paul, Minn	8.2	13.0	19.1	32.2	38.8	54.0	57.8	58.4	48.4	38.4	24.7	10.6	33.2
Saint Vincent, Minn	−8.2	−0.8	7.3	26.7	36.2	48.8	54.1	56.2	45.0	34.1	16.0	−0.2	26.3
Salt Lake City, Utah	10.7	11.0	22.9	28.8	30.4	38.2	42.8	47.0	38.5	30.5	20.8	20.4	28.4
San Diego, Cal	39.1	39.8	47.6	47.0	50.8	56.4	59.1	61.6	59.1	50.2	44.8	42.4	49.8
Sandusky, Ohio	20.6	26.2	27.0	34.8	42.8	55.5	58.4	60.2	54.0	45.8	33.8	23.9	41.6
Sandy Hook, N. J	24.7	28.4	29.6	37.7	47.6	60.8	61.3	62.3	58.1	48.9	36.0	27.4	43.8
San Francisco, Cal	38.4	37.6	44.2	43.8	47.7	50.8	52.2	52.2	52.6	50.0	46.2	44.8	46.7
Savannah, Ga	46.8	47.4	44.6	57.0	59.6	69.4	71.4	71.0	66.9	61.1	45.9	42.6	57.0
Shaw, Fort, Mont	8.0	10.4	17.2	25.4	34.6	44.0	40.1	42.3	36.9	28.2	18.7	15.5	26.8
Shreveport, La	39.8	44.5	47.5	56.0	59.8	68.8	69.8	68.3	60.9	60.5	47.0	38.8	55.1
Sill, Fort, Ind. T	25.4	31.6	37.7	43.3	51.6	64.0	65.7	63.5	56.6	51.8	35.5	27.4	47.6
Sitka, Alaska	29.0	25.8	27.2	31.2	38.4	43.0	46.2	48.8	45.6	37.8	28.8	29.2	35.9
Smithville, N. C	42.7	45.7	44.3	55.0	59.4	69.3	72.0	70.8	66.6	60.2	44.6	40.8	56.0
Spokane Falls, Wash. T	18.7	17.5	31.4	34.4	40.7	47.0	45.3	45.9	43.2	36.6	30.0	25.9	34.7
Springfield, Ill	18.2	26.2	28.8	40.2	47.1	60.9	61.2	60.5	51.2	46.6	32.8	23.2	41.4

Average dew-point (in degrees Fahrenheit) at stations of the Signal Service, United States Army, for each month and the year, &c.—Continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Concho, Fort, Tex	32.8	40.8	46.6	44.8	54.2	64.3	62.0	63.4	58.2	56.6	42.6	34.4	50.1
Custer, Fort, Mont	10.6	17.0	22.0	31.7	41.7	53.7	47.8	45.7	39.2	31.7	20.3	16.0	31.0
Davenport, Iowa	10.2	19.6	24.8	37.6	45.4	59.4	61.1	60.6	51.6	44.6	31.4	19.0	38.8
Davis, Fort, Tex	25.2	28.8	31.4	27.7	37.8	49.0	54.7	53.9	49.4	42.0	33.6	26.6	38.3
Dayton, Wash. T	23.7	17.8	33.3	34.4	41.0	47.0	46.2	47.0	41.6	36.8	32.2	30.6	36.0
Deadwood, Dak	12.8	15.5	24.2	30.8	38.4	48.6	51.6	51.0	41.4	32.0	24.3	19.2	32.5
Delaware Breakwater, Del	30.0	33.2	33.0	41.3	50.2	61.8	66.3	65.6	62.8	54.8	39.9	30.8	47.4
Denver, Colo	14.0	14.0	21.0	26.8	36.4	46.3	47.4	46.2	36.4	28.8	19.9	18.6	29.6
Des Moines, Iowa	8.9	18.0	25.0	38.2	45.0	58.3	60.8	60.1	49.7	42.5	28.0	16.2	37.6
Detroit, Mich	20.1	25.8	27.2	34.0	42.6	56.7	59.4	59.3	52.6	45.0	34.4	25.6	40.2
Dodge City, Kans	17.6	19.0	26.6	35.2	45.0	58.7	59.4	59.8	49.8	40.2	25.2	21.0	38.1
Dubuque, Iowa	5.8	15.2	22.5	33.3	41.4	55.6	58.5	58.4	49.7	41.5	27.8	13.9	35.3
Duluth, Minn	2.2	11.5	17.0	27.9	34.2	47.6	52.9	55.2	48.0	38.3	24.8	9.9	30.8
Eastport, Me	11.3	14.2	18.2	27.0	36.4	47.6	53.2	52.6	47.3	39.0	29.3	17.6	32.8
Elliott, Fort, Tex	13.0	18.2	28.2	34.6	44.0	55.9	59.4	57.4	49.8	44.1	27.8	22.1	37.8
El Paso, Tex	23.8	29.8	30.1	24.8	32.8	43.9	56.4	56.8	49.4	36.4	33.8	27.7	37.2
Erie, Pa	21.1	25.4	25.2	34.4	42.6	56.0	59.8	59.0	52.4	46.3	33.6	26.2	40.2
Escanaba, Mich	8.8	18.3	15.2	26.2	34.2	49.4	55.6	55.8	48.5	39.2	27.0	16.0	32.4
Fort Smith, Ark	25.3	30.3	33.9	46.0	55.4	67.4	68.2	65.8	58.0	56.4	40.4	31.2	24.0
Galveston, Tex	50.6	53.6	58.4	63.6	66.2	73.8	74.1	73.8	69.0	68.5	56.2	51.2	63.2
Grand Haven, Mich	19.6	24.4	25.2	32.3	40.0	54.0	58.6	59.8	51.7	43.6	33.4	24.3	38.9
Grant, Fort, Ariz	24.3	28.8	29.1	23.6	29.2	41.0	53.2	57.1	43.8	32.0	29.0	28.1	35.0
Hatteras, N. C	42.0	43.4	42.0	50.7	57.8	68.8	71.8	71.1	68.1	62.0	47.7	41.2	55.6
Helena, Mont	12.6	12.3	22.5	30.1	36.2	46.2	49.0	46.2	41.1	30.6	22.8	19.6	30.8
Huron, Dak	—0.8	9.0	18.8	33.8	41.8	55.0	58.2	58.4	46.8	36.1	20.8	7.1	32.0
Indianapolis, Ind	21.2	28.6	28.8	39.6	46.4	59.6	61.3	60.9	53.5	47.0	33.1	28.8	42.0
Indianola, Tex	49.7	53.8	60.0	65.0	68.0	74.8	74.9	74.0	70.2	69.6	57.6	51.6	64.0
Jacksonville, Fla	52.2	58.1	50.2	61.8	62.1	71.0	72.8	72.0	68.6	65.8	52.8	49.2	61.0
Keokuk, Iowa	15.5	22.3	28.2	40.6	47.4	60.8	62.6	61.9	52.2	45.6	32.9	21.8	41.0
Key West, Fla	65.8	66.1	63.4	68.2	68.6	73.2	73.6	74.1	78.8	72.6	66.4	64.4	69.2
Kitty Hawk, N. C	37.3	40.1	37.6	46.8	55.2	66.4	69.6	69.0	65.8	58.9	43.3	36.4	52.2
Knoxville, Tenn	34.5	37.6	35.0	45.4	51.2	63.4	64.4	63.8	58.8	55.6	37.8	30.4	48.2
La Crosse, Wis	6.4	15.6	21.3	32.2	38.2	53.2	58.0	58.4	49.6	39.6	28.4	14.6	34.6
Leavenworth, Kans	17.8	24.8	29.3	39.6	46.6	61.0	62.5	61.6	51.2	45.6	32.5	24.2	41.4
Lewiston, Idaho	21.1	17.3	32.6	34.8	41.0	45.2	44.4	46.8	41.8	37.4	31.0	28.6	35.2
Little Rock, Ark	34.9	41.5	43.1	52.5	57.7	69.0	69.9	68.7	61.6	59.8	44.8	35.8	53.2
Los Angeles, Cal	36.6	36.8	45.8	45.4	49.6	55.4	57.4	58.0	56.0	48.7	41.2	39.8	47.6
Louisville, Ky	27.9	32.6	32.3	41.8	50.9	68.5	68.9	62.6	56.6	52.4	38.0	29.4	46.0
Lynchburg, Va	27.2	31.3	28.4	41.0	48.0	60.8	62.6	61.4	57.8	51.1	33.0	25.4	44.0

Mackinaw City, Mich	8.1	6.5	7.5	25.8	33.8	49.6	53.6	53.8	49.2	39.8	29.8	20.4	30.9
Macon, Fort, N. C	41.6	44.8	48.4	58.5	59.8	69.6	72.6	72.2	68.2	62.0	46.8	40.1	56.2
Maginnis, Fort, Mont	0.2	0.4	11.8	22.0	29.0	36.2	35.6	38.2	33.6	25.0	14.0	11.4	20.9
Marquette, Mich	7.8	11.7	13.0	25.6	30.8	44.4	51.2	52.8	46.3	36.9	25.2	14.6	30.0
Memphis, Tenn	34.6	40.0	40.5	50.4	55.6	67.6	68.0	67.2	60.0	56.3	43.4	34.8	51.6
Milwaukee, Wis	14.0	21.1	21.5	32.8	38.8	51.2	56.8	59.0	51.5	43.6	31.1	19.1	37.1
Mobile, Ala	48.8	50.6	51.0	59.6	60.8	71.8	71.6	71.8	66.0	63.3	49.2	44.6	59.1
Montgomery, Ala	43.6	46.6	44.4	54.8	56.0	67.8	68.0	69.2	62.1	58.6	44.8	39.9	54.6
Moorhead, Minn	−5.0	5.0	11.8	31.0	38.1	50.2	55.2	55.0	45.4	36.0	18.2	1.6	28.6
Mount Washington, N. H	−1.7	2.8	4.0	15.3	27.2	39.8	44.0	42.6	35.5	27.3	18.2	5.8	21.3
Nashville, Tenn	34.1	38.5	37.9	47.4	53.1	65.4	66.4	65.8	59.4	56.2	41.5	33.6	50.0
New Haven, Conn	17.4	20.2	21.8	31.8	42.5	56.4	60.8	57.8	53.7	43.7	30.2	21.7	38.2
New London, Conn	19.6	24.2	25.6	34.6	43.9	57.4	61.6	59.3	55.8	46.1	32.9	22.7	40.3
New Orleans, La	50.7	52.6	52.8	61.4	63.0	71.8	71.8	71.8	66.8	65.2	51.8	46.5	60.5
New York City	22.6	26.7	27.2	35.5	45.2	58.2	62.2	59.0	56.1	47.0	34.2	25.4	41.6
Norfolk, Va	33.9	37.2	34.8	45.8	53.8	64.7	68.8	67.8	64.2	57.1	41.1	33.6	50.2
North Platte, Nebr	12.0	15.2	23.7	34.4	43.0	56.4	58.4	57.6	47.6	36.6	23.0	19.8	35.6
Olympia, Wash. T	32.4	29.7	37.8	40.0	44.2	47.6	47.5	50.1	49.0	43.8	38.3	36.8	41.4
Omaha, Nebr	10.8	18.1	24.7	37.8	45.1	58.7	62.0	62.4	52.6	42.6	28.6	16.9	38.3
Oswego, N. Y	15.7	20.8	21.6	30.6	39.8	54.6	58.4	58.0	51.8	42.2	30.6	21.6	37.1
Palestine, Tex	32.8	37.6	47.4	53.1	60.8	69.2	70.0	67.6	61.0	60.2	47.6	39.6	53.9
Pensacola, Fla	50.4	52.8	51.9	61.7	62.2	72.8	72.4	73.2	67.8	64.2	40.8	45.5	60.4
Philadelphia, Pa	24.4	28.6	29.0	39.6	51.0	63.1	65.8	64.6	59.3	50.2	35.8	28.4	45.0
Pike's Peak, Colo	−5.2	−0.7	5.7	8.8	15.8	25.4	29.6	30.2	23.5	13.6	7.0	2.0	13.0
Pittsburg, Pa	24.4	28.8	27.4	36.6	46.0	57.8	60.4	59.4	53.8	47.0	34.1	27.8	42.0
Port Huron, Mich	16.8	21.9	22.6	32.1	39.2	53.6	57.8	58.6	51.2	42.4	32.5	21.8	37.5
Portland, Me	14.6	17.5	19.9	29.2	39.4	53.0	58.8	56.7	50.2	41.1	30.4	20.2	35.9
Portland, Oreg	33.8	28.2	38.6	39.0	42.9	49.8	52.3	51.8	50.4	45.3	39.3	38.7	42.5
Prescott, Ariz	17.3	22.8	26.3	21.2	25.5	33.8	50.9	54.6	37.5	28.6	24.6	24.9	30.6
Provincetown, Mass	21.6	22.0	25.6	34.0	43.4	58.1	61.2	59.6	54.8	45.0	34.8	26.8	39.9
Red Bluff, Cal	32.4	33.2	40.0	40.2	42.9	47.6	49.4	46.0	45.4	43.6	40.6	38.4	41.6
Rio Grande City, Tex	54.8	54.5	59.9	62.0	68.5	70.7	68.4	70.5	63.3	66.6	57.5	53.0	62.5
Rochester, N. Y	18.6	22.4	22.6	31.2	39.6	52.0	56.1	58.4	52.7	42.4	30.6	22.6	38.3
Roseburg, Oreg	32.9	31.8	33.2	38.2	41.8	47.4	49.1	48.8	47.0	43.4	37.9	37.5	41.2
Sacramento, Cal	35.6	36.6	43.4	43.1	49.0	54.2	55.4	54.0	53.3	48.4	42.6	41.6	46.5
Saint Louis, Mo	22.5	31.4	35.0	47.0	54.8	65.4	66.0	66.3	56.8	52.6	40.0	29.6	47.3
Saint Michael's, Fort, Alaska	16.2	9.9	15.7	13.6	34.4	41.7	49.0	47.1	40.6	30.2	14.7	−0.8	25.9
Saint Paul, Minn	8.2	13.0	19.1	32.2	38.8	54.0	57.8	58.4	48.4	38.4	24.7	10.6	33.2
Saint Vincent, Minn	−8.2	−0.8	7.3	26.7	36.2	48.8	54.1	56.2	45.0	34.1	16.0	−0.2	26.8
Salt Lake City, Utah	10.7	11.0	22.9	28.8	30.4	38.2	42.3	47.0	38.5	30.5	20.8	20.4	28.4
San Diego, Cal	39.1	39.8	47.6	47.0	50.8	56.4	59.1	61.6	59.1	50.2	44.8	42.4	49.8
Sandusky, Ohio	20.6	26.2	27.0	34.8	42.8	55.5	58.4	60.2	54.0	45.8	33.8	23.9	41.6
Sandy Hook, N. J	24.7	28.4	29.6	37.7	47.6	60.8	61.3	62.8	58.1	48.9	36.0	27.4	43.8
San Francisco, Cal	38.4	37.6	44.2	43.8	47.7	50.8	52.2	52.2	52.6	50.0	46.2	44.8	46.7
Savannah, Ga	46.8	47.4	44.6	57.0	59.6	69.4	71.4	71.0	66.9	61.1	45.9	42.6	57.0
Shaw, Fort, Mont	8.0	10.4	17.2	25.4	34.6	44.0	40.1	42.3	36.9	28.2	18.7	15.5	26.8
Shreveport, La	39.8	44.5	47.5	56.0	59.8	68.8	69.8	68.3	60.9	60.5	47.0	38.8	55.1
Sill, Fort, Ind. T	25.4	31.6	37.7	43.3	51.6	64.0	65.7	63.5	56.6	51.8	35.5	27.4	47.6
Sitka, Alaska	29.0	25.8	27.2	31.2	38.4	43.0	46.2	48.8	45.6	37.8	28.8	29.2	35.9
Smithville, N. C	42.7	45.7	44.3	55.0	59.4	69.3	72.0	70.8	66.6	60.2	44.6	40.8	56.0
Spokane Falls, Wash. T	18.7	17.5	31.4	34.4	40.7	47.0	45.3	45.9	43.2	36.6	30.0	25.9	34.7
Springfield, Ill	18.2	26.2	28.8	40.2	47.1	60.9	61.2	60.5	51.2	46.6	32.8	23.2	41.4

Average dew-point (in degrees Fahrenheit) at stations of the Signal Service, United States Army, for each month and the year, &c.—Continued.

Stations.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
	°	°	°	°	°	°	°	°	°	°	°	°	°
Stockton, Fort, Tex	30.6	36.4	41.3	39.4	54.4	62.6	62.4	60.4	56.6	50.4	38.4	31.8	47.0
Thomas, Camp, Ariz	30.8	34.6	37.7	29.8	35.2	44.0	56.4	60.7	47.4	32.8	33.0	32.2	39.5
Toledo, Ohio	18.8	24.4	24.2	33.6	42.4	56.8	59.4	59.8	52.6	44.3	31.9	23.0	39.2
Vicksburg, Miss	42.2	45.4	46.6	55.6	58.8	69.6	70.4	69.9	68.6	61.2	47.6	41.3	56.0
Washington City	25.8	30.4	29.8	40.7	49.2	61.4	64.0	62.2	58.4	51.1	35.6	27.2	44.6
West Las Animas, Colo	7.8	11.4	17.6	23.0	35.3	47.6	49.5	50.6	40.6	31.0	15.2	16.0	28.6
Wilmington, N. C	41.9	44.2	42.4	53.0	57.6	68.0	71.4	70.6	66.4	50.4	43.2	36.8	54.6
Yankton, Dak	4.8	10.7	21.3	34.8	42.1	50.2	59.1	60.2	48.8	30.0	24.2	12.1	35.0
Yuma, Ariz	32.6	33.8	41.0	39.8	45.8	58.0	65.8	66.8	54.8	41.6	33.6	31.3	42.9

APPENDIX 62.

Table showing the average movement of the wind, in miles, at the stations of the Signal Service, United States Army, for each month and the year.

[Computed from the commencement of observations at each, to and including December, 1883.]

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		Miles.	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*
Albany, N. Y	Dec. 22, 1873	5,905.7	5,733.8	6,708.6	6,140.9	5,261.1	4,274.6	3,792.5	3,309.9	3,600.6	4,414.6	5,176.0	5,486.0	59,807.3
Alpena, Mich	Sept. 10, 1872	6,836.6	6,860.8	7,726.6	6,646.0	6,206.1	5,768.5	5,550.5	5,242.8	6,026.4	6,670.8	6,903.7	7,078.9	79,099.9
Apache, Fort, Ariz	Oct. 9, 1877	3,704.4	3,730.2	4,953.4	5,890.4	5,911.2	5,682.2	4,529.8	3,859.2	4,003.0	4,252.8	3,917.8	3,876.0	57,006.7
Assinaboine, Fort, Mont	Oct. 6, 1879	7,919.7	8,290.7	7,581.3	7,823.0	7,058.0	6,964.0	7,531.0	6,820.3	6,856.0	7,189.3	8,326.2	8,132.2	92,650.5
Atlanta, Ga	Sept. 25, 1878	7,663.6	7,647.6	8,299.6	6,449.6	5,012.4	5,323.8	5,467.6	5,369.6	5,514.6	6,484.0	6,789.0	7,226.6	78,148.0
Atlantic City, N. J	Dec. 10, 1873	7,262.4	7,335.2	8,912.9	8,426.0	7,503.0	6,286.2	5,696.9	6,694.8	7,463.1	7,102.7	7,018.1	7,167.7	86,535.1
Augusta, Ga	Nov. 2, 1870	2,586.2	2,921.8	3,633.8	3,230.1	3,008.8	2,774.7	2,427.2	2,294.0	2,426.8	2,684.9	2,663.6	2,485.1	33,222.2
Baltimore, Md	Jan. 1, 1871	4,129.0	4,116.2	5,278.7	4,931.4	4,475.7	4,310.1	4,159.7	3,670.8	3,778.8	3,944.5	3,986.8	4,237.5	51,156.5
Barnegat City, N. J	Dec. 10, 1873	9,793.1	9,393.6	11,217.5	9,822.1	8,797.7	7,656.0	7,161.4	7,948.8	8,914.7	9,330.0	9,796.7	9,716.5	109,858.9
Bennett, Fort, Dak	Dec. 22, 1879	5,024.0	4,282.7	5,964.7	6,503.7	7,387.0	5,920.3	5,835.0	6,488.5	6,090.3	5,776.0	5,380.2	4,468.5	66,436.5
Benton, Fort, Mont	Oct. 11, 1870	5,722.0	5,935.8	6,453.3	5,807.0	5,917.5	5,258.5	4,701.0	4,235.0	4,813.8	5,094.5	6,155.0	5,845.8	52,370.0
Bismarck, Dak	Sept. 15, 1874	6,036.7	5,841.1	7,190.1	8,346.4	8,031.8	6,752.1	6,878.1	6,440.2	6,547.4	7,130.2	6,502.3	6,098.8	82,010.7
Block Island, R. I	Sept. 1, 1880	12,725.7	11,146.0	13,280.0	10,680.0	10,871.3	8,821.3	8,380.7	7,776.7	10,205.2	11,179.8	12,311.0	12,806.8	130,024.7
Boisé City, Idaho	July 1, 1877	3,316.0	3,335.3	4,090.5	4,343.7	4,493.8	3,506.3	3,320.6	2,825.9	2,730.9	2,924.6	2,674.9	2,602.7	40,734.2
Boston, Mass	Nov. 1, 1870	7,238.8	7,173.7	8,418.4	7,216.4	6,463.4	5,515.7	5,441.3	5,277.1	5,008.0	6,522.4	7,289.2	7,319.2	81,024.4
Brownsville, Tex	Aug. 25, 1875	5,180.0	5,566.7	6,063.6	6,376.9	5,686.9	5,239.1	5,118.4	3,755.0	3,126.6	3,851.0	4,967.6	5,177.0	60,111.7
Buffalo, N. Y	Nov. 1, 1870	8,210.8	7,265.7	7,726.2	6,256.8	5,775.7	5,190.3	5,852.2	4,832.1	5,761.2	6,676.3	7,763.0	8,889.2	79,663.9
Buford, Fort, Dak	Oct. 23, 1878	4,650.2	4,334.8	5,909.6	7,354.4	7,385.0	6,049.6	6,482.2	6,828.0	6,064.0	6,507.4	6,097.2	5,007.8	73,059.5
Cairo, Ill	June 1, 1871	5,619.0	5,748.5	7,417.2	6,412.5	5,512.8	4,714.0	3,891.0	3,598.9	4,138.7	4,978.2	5,654.8	5,706.9	64,047.1
Cape Henry, Va	Dec. 15, 1873	9,370.0	9,184.4	10,913.0	9,932.5	8,761.9	7,890.0	7,239.2	7,201.8	9,070.1	9,674.6	9,877.1	9,919.4	109,848.9
Cape May, N. J	May 24, 1871	10,607.8	10,917.4	12,233.8	10,517.9	9,326.1	7,798.8	7,417.4	7,257.3	8,443.7	10,108.9	11,316.2	11,830.8	120,998.8
Cedar Keys, Fla	Nov. 7, 1879	6,668.5	6,470.5	8,289.2	7,401.0	7,285.2	6,691.5	6,214.8	6,743.0	5,928.5	6,849.8	5,639.8	6,339.8	81,285.2
Charleston, S. C	Jan. 5, 1871	5,415.4	5,481.9	6,547.4	6,224.8	6,518.1	5,872.3	5,605.9	5,440.5	5,597.0	5,714.4	5,411.8	5,260.7	70,741.4
Charlotte, N. C	Oct. 6, 1878	3,872.6	4,249.6	4,903.6	4,489.8	3,921.4	3,768.2	3,433.0	3,362.6	3,467.8	3,758.6	3,716.0	3,795.2	46,652.6
Chattanooga, Tenn	Jan. 8, 1879	4,425.4	5,307.2	5,767.2	5,212.2	4,026.4	3,752.4	3,527.0	3,407.2	3,298.6	3,553.6	4,122.6	4,685.8	51,115.6
Cheyenne, Wyo	Nov. 1, 1870	9,524.2	8,265.2	9,238.8	8,533.3	7,800.8	6,638.5	6,515.0	5,987.4	6,260.8	7,401.9	7,907.2	8,355.8	92,252.5
Chicago, Ill	Nov. 1, 1870	6,690.9	6,179.9	7,312.0	6,858.7	6,421.6	5,587.2	5,314.5	5,138.2	5,588.3	6,288.6	6,200.9	6,421.6	74,123.5
Chincoteague, Va	Mar. 16, 1880	8,957.3	9,103.7	11,168.7	10,195.0	9,816.0	7,925.8	7,439.2	7,666.5	8,526.2	9,663.5	9,746.8	8,560.0	103,088.0
Cincinnati, Ohio	Nov. 1, 1870	4,725.9	4,638.7	5,090.8	4,835.4	4,320.9	4,005.2	3,570.4	3,196.8	3,453.4	3,933.6	4,328.2	4,572.8	51,487.4
Cleveland, Ohio	Nov. 1, 1870	7,971.6	6,931.6	8,037.9	6,617.2	6,175.9	5,698.2	5,437.7	5,094.1	6,275.3	7,277.3	8,146.8	8,142.5	83,799.2
Columbus, Ohio	July 1, 1878	5,930.6	6,285.2	7,133.4	6,111.0	5,223.2	5,019.6	4,284.2	3,758.8	4,310.0	4,742.7	5,690.7	6,029.0	64,402.2
Concho, Fort, Tex	Oct. 10, 1875	6,001.8	6,125.8	7,030.8	8,164.0	8,436.5	7,493.8	6,536.5	5,204.8	5,561.7	6,037.2	5,776.5	6,293.4	80,944.7
Custer, Fort, Mont	Dec. 5, 1878	5,148.3	5,098.0	6,205.3	6,368.7	6,169.3	5,118.0	5,159.7	5,216.0	4,813.2	5,199.6	4,896.7	4,931.2	65,533.0
Davenport, Iowa	May 24, 1871	6,271.4	6,032.4	7,685.2	7,580.1	6,821.1	5,579.2	4,933.7	4,742.1	5,505.4	6,013.8	6,296.2	6,152.0	72,797.3
Davis, Fort, Tex	Dec. 24, 1877	4,062.2	3,926.8	4,584.4	5,001.0	4,216.2	3,774.0	3,485.5	3,319.8	3,103.0	3,692.2	3,664.0	4,384.8	45,121.0
Dayton, Wash. T	July 1, 1879	3,522.7	3,529.7	4,102.0	4,529.3	4,012.0	3,916.3	3,739.7	3,465.0	3,301.3	4,192.3	3,947.0	3,934.0	46,241.3

Table showing the average movement of the wind, in miles, at the stations of the Signal Service, United States Army, for each month and the year—Cont'd.

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		Miles.	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*
Deadwood, Dak	Dec. 25, 1877	2,962.7	2,373.0	2,760.3	2,727.0	3,036.0	3,037.2	3,010.8	3,866.0	3,037.4	3,241.4	2,591.7	2,573.2	34,842.8
Delaware Breakwater, Del	Jan. 28, 1880	11,915.7	12,348.8	14,719.8	11,956.2	11,689.2	9,557.2	8,622.5	9,069.8	10,964.2	12,191.5	12,347.5	12,502.2	137,073.8
Denver, Colo	Nov. 19, 1871	4,708.8	4,119.0	5,415.1	5,287.6	5,070.4	4,538.1	4,532.5	4,178.1	3,963.0	4,436.3	4,355.9	4,353.3	54,957.7
Des Moines, Iowa	Aug. 1, 1878	4,677.0	4,951.0	6,101.8	6,016.6	5,002.2	4,471.6	3,766.0	3,441.8	4,038.8	4,359.6	4,847.2	4,788.2	56,518.8
Detroit, Mich	Nov. 1, 1870	6,128.6	5,795.2	6,730.3	6,217.6	5,872.9	4,953.8	4,785.8	4,541.8	4,914.7	5,777.4	5,986.9	6,253.2	67,919.2
Dodge City, Kans	Sept. 15, 1874	7,966.0	7,659.0	10,230.4	10,616.2	10,900.2	9,765.1	9,290.9	8,217.9	8,651.0	8,770.8	7,619.8	7,521.9	109,333.2
Dubuque, Iowa	July 10, 1873	3,549.9	3,713.5	4,884.9	5,085.0	4,437.7	3,909.8	3,264.0	3,142.7	3,312.7	3,974.3	3,894.3	3,607.1	46,887.2
Duluth, Minn	Nov. 1, 1870	4,863.3	5,160.6	5,908.1	6,282.6	5,137.7	4,407.9	4,909.5	4,811.1	5,393.7	5,876.8	5,267.8	5,236.0	63,358.1
Eastport, Me	Apr. 1, 1873	9,214.9	8,583.2	9,650.9	7,841.0	6,274.8	4,920.8	4,717.7	4,353.5	5,456.1	7,107.0	8,585.1	8,822.2	85,197.3
Elliott, Fort, Tex	Nov. 29, 1879	7,822.2	7,614.2	9,548.7	10,378.5	10,578.2	9,146.2	7,387.0	5,889.5	7,018.2	8,318.0	7,483.3	7,089.8	99,960.5
El Paso, Tex	Nov. 5, 1877	3,667.4	4,161.2	4,990.6	4,674.6	4,499.2	3,899.5	3,639.0	2,712.5	2,782.8	3,252.0	3,424.0	3,451.5	46,262.8
Erie, Pa	May 25, 1873	8,852.4	7,992.5	8,511.2	7,853.4	6,615.9	6,010.1	5,359.0	5,228.8	6,822.7	7,609.4	9,052.9	9,486.3	88,889.6
Escanaba, Mich	May 24, 1871	7,016.8	6,682.1	7,936.4	7,226.8	6,673.2	6,124.8	6,101.0	5,732.8	7,057.8	7,809.9	7,094.5	7,225.3	83,189.5
Fort Smith, Ark	June 1, 1882	4,231.0	4,415.0	4,237.0	4,637.0	4,495.0	2,942.0	2,937.0	2,680.5	2,742.5	3,600.5	3,694.5	4,242.0	44,668.0
Galveston, Tex	Apr. 19, 1871	7,681.6	7,244.8	7,523.0	7,794.4	7,331.8	6,250.4	5,820.4	5,183.5	6,486.0	7,101.2	7,910.8	7,731.4	85,208.8
Grand Haven, Mich	May 24, 1871	8,596.0	8,324.8	9,079.0	8,489.1	7,894.8	6,534.0	6,269.5	6,007.9	7,114.4	8,737.0	8,938.0	8,958.3	95,770.9
Grant, Fort, Ariz	Nov. 1, 1875	4,658.0	5,246.0	5,594.4	6,534.0	5,871.0	5,750.2	5,015.4	4,570.2	5,279.8	5,016.0	4,769.2	4,934.0	63,353.0
Hatteras, N. C	Dec. 1, 1880	11,117.7	11,823.3	13,814.3	13,109.0	12,190.0	11,717.3	10,972.0	10,558.7	10,732.3	11,288.0	10,184.3	10,315.7	137,767.7
Helena, Mont	Oct. 15, 1879	3,650.3	3,219.7	4,957.3	4,943.2	5,018.5	4,709.0	4,597.5	4,042.0	3,818.2	3,875.0	3,545.0	3,633.2	51,259.0
Huron, Dak	July 1, 1881	8,423.0	7,111.0	9,346.5	9,176.5	8,955.0	6,692.5	7,517.0	6,973.0	7,629.7	7,452.3	7,811.3	7,088.3	91,353.5
Indianapolis, Ind	Feb. 10, 1871	4,763.3	4,397.4	5,550.4	5,013.1	4,276.2	3,681.5	3,201.2	3,324.9	3,342.0	3,817.8	4,157.1	4,044.6	49,915.1
Indianola, Tex	May 1, 1872	10,308.5	9,906.6	10,643.5	10,875.8	9,754.1	8,405.0	8,002.2	7,114.3	8,098.7	8,714.9	10,227.7	10,383.8	112,770.5
Jacksonville, Fla	Sept. 11, 1871	4,348.2	4,607.3	5,899.9	5,436.1	5,006.2	4,948.9	4,691.0	4,610.8	4,635.2	5,138.8	4,649.3	4,498.1	58,751.8
Keokuk, Iowa	July 16, 1871	6,148.0	5,709.6	7,198.9	7,375.9	6,754.9	5,522.9	4,617.0	4,643.5	5,332.2	5,843.8	6,023.8	5,684.4	70,914.9
Key West, Fla	Nov. 1, 1870	8,009.4	7,054.3	8,303.5	7,569.6	7,068.8	5,450.3	5,560.5	5,449.7	5,836.2	8,617.4	8,099.0	8,327.2	85,585.4
Kitty Hawk, N. C	Jan. 15, 1875	11,174.1	10,936.1	11,895.0	11,664.8	10,919.7	9,640.6	8,972.5	9,125.8	10,851.1	11,333.8	11,779.4	11,417.6	128,991.6
Knoxville, Tenn	Jan. 1, 1871	4,451.8	4,610.8	5,092.4	5,139.3	4,323.8	3,803.7	3,508.8	3,180.9	3,204.8	3,280.7	3,879.7	4,297.8	49,404.8
La Crosse, Wis	Oct. 15, 1872	5,042.9	5,229.0	6,278.5	6,216.8	5,831.4	5,221.9	4,095.5	4,544.2	5,002.6	5,772.6	5,488.2	5,140.8	64,457.6
Leavenworth, Kans	May 21, 1871	5,362.5	5,154.9	6,895.1	6,663.2	5,773.5	5,183.8	4,109.2	3,898.8	4,600.8	4,928.3	5,306.0	5,063.2	62,686.6
Lewiston, Idaho	July 1, 1879	2,959.0	2,510.0	2,814.0	2,526.8	2,765.2	2,365.0	2,666.2	2,291.5	1,569.0	1,626.2	2,082.8	2,609.8	27,876.0
Little Rock, Ark	July 1, 1879	4,093.0	4,353.8	5,129.0	4,761.0	3,790.0	3,227.0	3,338.2	2,884.4	2,023.4	3,757.8	4,104.2	4,236.4	46,407.5
Los Angeles, Cal	July 1, 1877	4,128.2	3,855.8	3,838.5	3,856.8	4,040.2	3,0[illegible].8	3,664.9	3,352.5	3,317.4	3,563.1	3,540.4	3,752.3	44,250.6
Louisville, Ky	Sept. 11, 1871	5,658.5	5,788.5	6,674.8	5,964.3	5,185.0	4,902.6	4,250.2	4,014.9	4,333.8	4,897.9	5,382.2	5,603.3	62,872.5
Lynchburg, Va	May 24, 1871	2,768.2	2,995.8	3,862.4	3,352.1	2,914.5	2,348.8	2,277.7	2,075.8	1,891.6	2,144.8	2,322.6	2,727.1	31,459.0
Mackinaw City, Mich	Aug. 20, 1882	9,161.0	8,092.0	7,156.0	6,944.0	7,956.0	6,252.0	6,152.0	6,326.0	6,654.0	7,643.5	8,465.0	9,284.0	89,566.0
Macon, Fort, N. C	May 23, 1878	8,462.3	8,823.7	10,390.3	9,296.7	9,289.0	9,087.7	8,165.0	8,220.0	9,095.3	10,245.3	9,261.7	8,738.7	111,655.5
Maginnis, Fort, Mont	July 14, 1882	12,083.0	8,507.0	7,542.0	8,428.0	7,863.0	8,170.0	7,510.0	7,125.5	6,547.0	8,655.5	9,776.0	10,335.0	99,279.0
Marquette, Mich	May 1, 1871	6,970.8	6,106.5	6,064.4	5,957.2	5,432.6	5,025.7	5,115.6	5,194.2	6,151.2	6,813.0	6,672.5	7,176.2	73,630.0
Memphis, Tenn	Feb. 28, 1871	4,448.8	3,982.3	4,981.8	4,892.2	3,967.6	3,525.8	3,201.1	2,958.5	3,190.4	3,630.2	4,275.9	4,330.7	47,309.8
Milwaukee, Wis	Nov. 1, 1870	8,644.1	8,310.8	9,599.4	8,536.8	7,860.8	6,813.8	6,360.1	6,624.4	7,209.2	8,418.2	8,658.8	9,110.0	96,811.4
Mobile, Ala	Nov. 7, 1870	4,507.3	4,475.0	5,174.0	4,976.9	4,733.8	4,154.9	3,918.5	3,747.6	4,105.7	4,473.4	4,337.2	4,294.8	53,236.5
Montgomery, Ala	Nov. 9, 1870	4,074.7	4,175.6	4,831.3	4,185.1	3,628.2	3,343.7	3,117.1	2,888.5	3,224.6	3,534.5	3,714.2	3,870.1	46,055.8

Moorhead, Minn	Jan. 1, 1881	8,084.3	7,719.7	10,088.0	8,552.0	9,029.3	6,972.0	7,646.7	7,447.3	7,423.0	7,875.8	8,205.7	7,963.8	95,436.0
Nashville, Tenn	Nov. 1, 1870	3,296.7	3,320.6	4,012.1	3,689.8	3,115.3	2,815.2	2,548.8	2,882.2	2,499.8	2,843.8	3,261.4	3,357.5	38,109.6
New Haven, Conn	Dec. 10, 1872	5,843.6	5,673.5	7,048.8	6,478.2	5,470.7	4,625.7	4,483.0	4,365.5	4,958.4	5,457.0	5,857.6	5,842.4	66,048.0
New London, Conn	Jan. 10, 1871	5,670.0	5,837.8	6,838.4	6,114.2	5,270.2	4,890.8	4,281.7	3,980.8	4,457.2	5,255.2	5,791.3	5,616.7	63,727.3
New Orleans, La	Nov. 1, 1870	5,782.9	5,843.0	6,390.2	6,088.4	5,179.3	4,294.6	4,229.2	4,065.8	5,116.8	5,473.1	5,795.6	5,976.5	64,745.2
New York City	Nov. 1, 1870	7,478.9	7,536.9	8,850.2	7,346.3	6,590.2	5,835.8	5,617.6	5,588.8	6,278.1	6,828.4	7,225.2	7,534.6	82,711.1
Norfolk, Va	Jan. 1, 1871	5,597.1	5,902.0	7,048.4	6,411.4	5,929.5	5,294.5	4,976.7	4,743.5	4,761.1	5,853.8	5,520.1	5,604.2	67,738.7
North Platte, Nebr	Sept. 18, 1874	7,402.2	6,816.4	9,302.2	9,756.1	10,486.1	9,843.4	8,988.8	8,537.1	8,282.1	8,532.5	7,434.2	6,746.3	102,287.1
Olympia, Wash. T	July 1, 1877	3,373.7	3,269.2	3,264.2	3,191.0	3,058.2	2,805.7	2,702.0	2,229.3	2,812.7	2,977.0	2,904.1	3,287.6	35,824.3
Omaha, Nebr	Nov. 1, 1870	6,806.6	6,354.5	8,035.4	7,854.5	7,001.5	5,777.9	5,200.1	5,050.8	5,556.6	6,385.5	7,006.3	6,591.7	78,009.6
Oswego, N. Y	Nov. 1, 1870	7,874.2	7,351.3	7,696.5	6,326.6	5,598.7	4,592.4	4,614.7	4,336.8	5,226.5	6,316.8	7,470.8	7,889.8	75,147.4
Palestine, Tex	Dec. 3, 1881	6,777.0	6,901.0	7,575.0	7,411.0	7,301.0	5,401.0	5,977.0	4,612.0	5,459.5	6,742.0	6,576.5	7,087.5	78,372.0
Pensacola, Fla	Oct. 27, 1879	5,105.0	5,620.0	6,304.8	6,437.0	6,490.8	5,974.2	4,978.5	5,210.5	5,025.8	5,853.2	5,522.2	5,860.2	68,040.5
Philadelphia, Pa	Jan. 1, 1871	7,724.2	7,397.3	9,030.7	7,995.6	7,161.8	6,459.3	6,230.7	5,678.1	5,961.2	6,890.4	6,947.8	7,475.3	84,550.7
Pike's Peak, Colo	Nov. 1, 1873	18,378.9	16,717.2	18,747.2	15,191.9	16,336.6	13,700.2	9,084.9	8,943.0	11,030.4	16,220.3	16,427.1	17,074.4	181,641.4
Pittsburg, Pa	Nov. 1, 1870	5,006.4	4,602.7	5,633.5	4,740.8	4,059.7	4,038.6	3,774.5	3,264.8	3,561.7	4,080.2	4,791.5	5,162.0	52,749.7
Port Huron, Mich	July 25, 1874	7,494.8	7,324.1	7,992.9	7,702.0	7,443.1	6,098.4	5,799.1	5,381.5	6,083.0	7,046.5	7,549.1	7,749.8	83,558.3
Portland, Me	Jan. 15, 1871	5,662.8	5,654.7	6,792.2	6,370.9	5,797.1	4,945.8	4,880.6	4,250.1	4,792.9	5,421.2	5,972.7	5,831.4	67,042.5
Portland, Oreg	Nov. 1, 1871	4,454.7	3,469.8	3,814.6	3,402.5	3,586.4	3,337.6	3,526.0	3,033.3	3,013.8	3,016.0	3,272.8	3,502.5	40,873.3
Prescott, Ariz	Nov. 19, 1873	3,512.3	3,882.5	5,134.6	6,140.2	6,071.6	5,340.4	4,283.2	3,404.2	3,621.0	4,237.8	3,568.8	3,522.8	54,694.3
Provincetown, Mass	Feb. 15, 1882	8,997.0	7,845.0	9,046.0	7,255.0	7,461.0	6,297.5	5,806.5	5,400.0	6,471.0	6,719.5	8,067.0	8,725.5	87,530.0
Red Bluff, Cal	July 1, 1877	5,693.8	5,676.2	6,721.3	6,051.3	6,204.5	5,610.2	4,531.6	3,624.8	4,454.0	5,025.4	4,220.2	4,538.8	61,250.5
Rio Grande City, Tex	May 28, 1875	5,162.8	5,311.8	5,722.0	6,720.6	7,398.4	7,204.3	7,939.8	5,447.7	4,023.8	4,090.6	4,830.6	4,398.4	72,988.7
Rochester, N. Y	Nov. 1, 1870	8,279.0	7,007.2	8,600.4	7,502.9	7,168.8	5,970.9	5,593.4	5,102.5	5,862.7	6,607.6	7,409.1	8,034.8	82,437.4
Roseburg, Oreg	July 15, 1877	2,233.0	2,108.8	2,487.8	2,602.2	2,680.3	2,736.0	2,658.0	2,446.5	1,988.2	1,930.7	1,553.5	1,841.5	27,286.5
Sacramento, Cal	July 1, 1877	4,841.5	4,451.5	5,208.3	5,445.8	5,473.0	5,504.0	5,008.3	4,380.6	3,060.7	3,896.9	3,417.4	4,100.7	56,136.5
Saint Louis, Mo	Nov. 1, 1870	7,597.3	7,004.8	8,662.0	7,680.8	7,184.2	6,405.0	5,712.5	5,456.8	6,085.5	7,036.2	7,621.2	7,593.0	84,820.9
Saint Michael's, Fort, Alaska	June 28, 1874	10,310.2	8,732.2	9,527.9	8,412.0	7,821.9	7,580.9	8,452.1	9,400.6	8,811.8	10,775.4	9,928.4	8,705.1	106,236.8
Saint Paul, Minn	Nov. 1, 1870	5,836.4	5,549.7	6,655.7	6,912.8	7,134.2	6,095.1	5,384.8	5,458.2	5,920.5	6,569.8	5,981.6	5,583.4	73,892.4
Saint Vincent, Minn	Sept. 5, 1880	7,190.3	6,965.7	8,041.8	6,826.7	7,427.3	5,932.3	6,023.7	5,263.3	5,895.7	6,480.0	7,504.5	7,397.2	80,186.3
Salt Lake City, Utah	Mar. 19, 1874	2,923.1	2,831.3	4,336.1	4,610.2	4,842.2	4,390.8	4,282.8	4,282.3	3,955.3	3,642.5	2,844.6	2,040.0	46,066.0
San Diego, Cal	Nov. 1, 1871	3,826.8	4,092.4	4,783.1	4,871.6	5,011.4	4,502.5	4,770.6	4,520.8	4,317.7	4,069.2	3,640.8	3,703.4	52,275.2
Sandusky, Ohio	Aug. 2, 1877	9,805.3	9,711.3	11,136.2	10,222.6	9,413.6	8,688.8	7,652.2	7,611.7	8,403.7	9,714.9	10,460.6	10,054.0	112,630.0
Sandy Hook, N. J	Dec. 10, 1873	10,806.8	9,010.4	12,423.9	10,207.0	9,055.0	8,430.3	8,041.6	8,342.8	9,908.2	10,923.2	11,740.4	12,457.5	122,857.0
San Francisco, Cal	Mar. 8, 1871	5,318.7	4,961.2	6,562.8	7,234.3	8,397.4	9,082.7	9,577.7	9,013.0	7,120.1	5,832.7	4,422.9	4,703.1	82,886.2
Savannah, Ga	Jan. 1, 1871	4,608.1	4,775.2	5,828.3	6,673.2	5,536.0	4,508.4	4,259.2	4,079.2	4,047.7	4,478.5	4,515.4	4,643.0	58,237.2
Shaw, Fort, Mont	Apr. 1, 1880	8,385.7	9,231.7	8,370.0	7,103.5	7,036.3	6,082.0	5,670.8	4,985.5	5,538.5	7,043.8	8,017.5	9,008.0	86,296.7
Shreveport, La	Sept. 3, 1871	3,739.2	3,923.9	4,675.9	4,616.9	3,840.0	3,273.7	3,109.6	2,711.1	2,892.8	3,117.1	3,597.2	3,743.7	43,271.0
Sill, Fort, Ind. T	June 23, 1875	7,409.7	7,785.0	9,304.5	9,887.2	9,743.2	8,731.2	7,437.3	6,088.3	7,165.7	8,315.8	7,092.7	7,259.2	95,963.0
Sitka, Alaska	Mar. 30, 1881	7,021.0	7,144.0	7,230.0	6,849.3	6,135.7	4,928.0	5,492.3	4,660.0	5,732.3	6,373.3	7,910.3	9,921.0	80,238.0
Smithville, N. C	Oct. 15, 1875	6,298.4	6,500.4	8,024.8	7,743.6	7,324.0	7,738.4	7,695.2	6,778.9	6,536.1	6,359.6	6,154.5	6,385.5	83,540.2
Spokane Falls, Wash. T	Feb. 5, 1881	3,196.5	3,420.3	3,831.3	4,928.3	4,465.7	4,322.3	4,034.7	3,472.7	2,793.7	3,349.3	2,886.3	3,017.3	43,092.0
Springfield, Ill	July 1, 1879	7,216.2	6,978.5	8,037.8	7,292.0	6,551.8	5,528.2	4,774.0	4,888.0	5,740.4	6,241.8	7,062.6	6,848.4	77,212.2
Stockton, Fort, Tex	Feb. 26, 1876	5,447.2	5,668.2	7,109.2	7,835.7	9,285.8	9,221.1	8,142.0	7,061.0	7,977.0	6,603.4	5,188.1	5,158.2	82,763.8
Toledo, Ohio	Nov. 1, 1870	7,079.2	6,199.9	7,366.9	6,780.9	6,688.3	5,607.9	5,123.7	4,892.2	5,280.1	6,299.0	6,649.5	6,967.3	76,137.1
Unalashka, Alaska	Aug. 18, 1878	9,122.7	10,254.3	9,827.7	9,413.3	8,196.5	7,679.5	6,975.5	6,751.0	9,448.5	8,767.0	8,817.8	10,598.5	110,166.5
Vicksburg, Miss	Sept. 10, 1871	4,383.4	4,322.9	5,090.1	4,834.6	3,874.0	3,186.7	3,008.5	2,835.8	2,781.3	3,596.9	4,480.5	4,623.0	47,239.0
Washington City	Nov. 1, 1870	4,750.4	4,830.9	6,418.9	5,765.2	4,830.8	4,252.8	4,062.6	3,568.7	3,889.9	4,039.3	4,456.8	4,852.9	56,196.0
West Las Animas, Colo	Oct. 1, 1881	6,517.0	5,990.0	6,674.5	8,822.0	9,615.0	6,738.5	5,554.0	6,197.0	6,612.0	6,694.0	4,756.5	5,442.0	77,989.0
Wilmington, N. C	Jan. 1, 1871	5,289.2	5,245.1	6,799.5	6,397.4	5,462.5	5,102.1	4,987.2	4,288.2	4,291.7	4,656.8	4,068.9	5,420.7	63,794.0
Yankton, Dak	Apr. 1, 1873	6,553.4	6,367.4	8,075.4	8,633.5	7,987.5	6,866.7	5,226.0	5,474.1	5,821.8	6,805.5	6,556.8	6,072.6	80,339.3
Yuma, Ariz	Nov. 18, 1873	4,155.0	4,726.3	4,371.7	4,479.5	4,330.2	3,626.0	4,431.3	4,076.1	3,035.7	3,290.8	3,717.0	3,622.5	47,773.8

Table showing the average movement of the wind, in miles, at the stations of the Signal Service, United States Army, for each month and the year—Cont'd.

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		Miles.	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*
Deadwood, Dak	Dec. 25, 1877	2,962.7	2,373.0	2,760.3	2,727.0	3,036.0	3,037.2	3,040.8	3,366.0	3,037.4	3,241.4	2,591.7	2,573.2	34,842.8
Delaware Breakwater, Del	Jan. 28, 1880	11,915.7	12,348.8	14,719.8	11,956.2	11,689.2	9,557.2	8,622.5	9,069.8	10,964.2	12,191.5	12,347.5	12,502.2	137,073.3
Denver, Colo	Nov. 19, 1871	4,708.3	4,119.0	5,415.1	5,287.6	5,070.4	4,538.1	4,532.5	4,178.1	3,963.0	4,436.3	4,355.9	4,353.3	54,957.7
Des Moines, Iowa	Aug. 1, 1878	4,677.0	4,951.0	6,101.8	6,016.6	5,002.2	4,471.6	3,766.0	3,441.8	4,038.8	4,359.6	4,847.2	4,788.2	56,518.8
Detroit, Mich	Nov. 1, 1870	6,128.6	5,795.2	6,730.3	6,217.6	5,872.9	4,953.8	4,785.8	4,541.8	4,914.7	5,777.4	5,980.9	6,253.2	67,919.2
Dodge City, Kans	Sept. 15, 1874	7,966.0	7,659.0	10,230.4	10,616.2	10,900.2	9,765.1	9,290.9	8,217.9	8,631.0	8,770.8	7,619.8	7,521.9	109,333.2
Dubuque, Iowa	July 10, 1873	3,549.9	3,713.5	4,884.9	5,085.0	4,437.7	3,909.3	3,264.0	3,142.7	3,312.7	3,974.3	3,894.3	3,607.1	46,887.2
Duluth, Minn	Nov. 1, 1870	4,863.3	5,160.6	5,908.1	6,282.6	5,137.7	4,407.9	4,909.5	4,811.1	5,393.7	5,876.8	5,267.8	5,236.0	63,358.1
Eastport, Me	Apr. 1, 1873	9,214.9	8,583.2	9,650.9	7,341.0	6,274.8	4,920.8	4,717.7	4,358.5	5,456.1	7,107.0	8,585.1	8,822.2	85,197.3
Elliott, Fort, Tex	Nov. 29, 1879	7,822.2	7,614.2	9,548.7	10,378.5	10,578.2	9,146.2	7,387.0	5,889.5	7,018.2	8,313.0	7,483.3	7,089.8	99,960.5
El Paso, Tex	Nov. 5, 1877	3,667.4	4,161.2	4,990.6	4,674.6	4,499.2	3,899.5	3,639.0	2,712.5	2,782.8	3,252.0	3,424.0	3,451.5	46,262.8
Erie, Pa	May 25, 1873	8,852.4	7,992.5	8,511.2	7,853.4	6,615.9	6,010.1	5,359.0	5,228.8	6,322.7	7,609.4	9,052.9	9,486.3	88,889.6
Escanaba, Mich	May 24, 1871	7,016.8	6,682.1	7,936.4	7,226.8	6,673.2	6,124.8	6,101.0	5,732.3	7,057.3	7,809.9	7,094.5	7,225.3	83,189.5
Fort Smith, Ark	June 1, 1882	4,231.0	4,415.0	4,237.0	4,637.0	4,495.0	2,942.0	2,937.0	2,680.5	2,742.5	3,600.5	3,694.5	4,242.0	44,668.0
Galveston, Tex	Apr. 19, 1871	7,081.6	7,244.8	7,523.0	7,794.4	7,331.8	6,230.4	5,820.4	5,183.5	6,486.0	7,101.2	7,910.8	7,731.4	85,208.8
Grand Haven, Mich	May 24, 1871	8,596.0	8,324.8	9,079.0	8,489.1	7,894.8	6,534.0	6,269.5	6,007.9	7,114.4	8,737.0	8,938.0	8,958.3	95,770.9
Grant, Fort, Ariz	Nov. 1, 1875	4,658.0	5,246.0	5,594.4	6,534.0	5,871.0	5,750.2	5,015.4	4,570.2	5,279.8	5,016.0	4,769.2	4,934.0	63,353.0
Hatteras, N. C	Dec. 1, 1880	11,117.7	11,823.3	13,814.3	13,109.0	12,190.0	11,717.3	10,972.0	10,558.7	10,732.3	11,288.0	10,134.3	10,315.7	137,767.7
Helena, Mont	Oct. 15, 1879	3,650.3	3,219.7	4,957.3	4,943.2	5,018.5	4,709.0	4,597.5	4,042.0	3,818.2	3,875.0	3,545.0	3,633.2	51,259.0
Huron, Dak	July 1, 1881	8,423.0	7,111.0	9,346.5	9,176.5	8,935.0	6,692.5	7,517.0	6,973.0	7,629.7	7,452.3	7,811.3	7,088.3	91,353.5
Indianapolis, Ind	Feb. 10, 1871	4,763.3	4,397.4	5,550.4	5,013.1	4,276.2	3,681.5	3,201.2	3,324.9	3,342.0	3,817.8	4,157.1	4,644.6	49,915.1
Indianola, Tex	May 1, 1872	10,308.5	9,906.6	10,643.5	10,875.8	9,754.1	8,405.0	8,002.2	7,114.3	8,098.7	8,714.9	10,227.7	10,383.8	112,770.5
Jacksonville, Fla	Sept. 11, 1871	4,348.2	4,667.3	5,899.9	5,436.1	5,006.2	4,948.9	4,691.9	4,610.8	4,635.2	5,138.8	4,649.3	4,498.1	58,751.8
Keokuk, Iowa	July 16, 1871	6,148.0	5,709.6	7,198.9	7,875.9	6,754.9	5,522.9	4,617.0	4,643.5	5,332.2	5,843.8	6,023.8	5,684.4	70,914.9
Key West, Fla	Nov. 1, 1870	8,009.4	7,054.3	8,303.5	7,569.6	7,068.8	5,450.3	5,560.5	5,449.7	5,836.2	8,617.4	8,099.0	8,327.2	85,585.4
Kitty Hawk, N. C	Jan. 15, 1875	11,174.1	10,936.1	11,895.0	11,664.8	10,919.7	9,640.6	8,972.5	9,125.8	10,851.1	11,333.8	11,779.4	11,417.6	128,991.6
Knoxville, Tenn	Jan. 1, 1871	4,451.8	4,610.8	5,692.4	5,139.3	4,323.8	3,863.7	3,508.8	3,180.9	3,204.8	3,280.7	3,879.7	4,297.3	49,404.8
La Crosse, Wis	Oct. 15, 1872	5,042.9	5,229.0	6,278.5	6,216.8	5,831.4	5,221.9	4,095.5	4,544.2	5,002.6	5,772.6	5,488.2	5,140.8	64,457.6
Leavenworth, Kans	May 21, 1871	5,362.5	5,154.9	6,895.1	6,663.2	5,773.5	5,183.8	4,109.2	3,898.8	4,600.8	4,9[illegible]8.3	5,306.0	5,063.2	62,686.6
Lewiston, Idaho	July 1, 1879	2,959.0	2,510.0	2,814.0	2,526.8	2,765.2	2,365.0	2,666.2	2,291.5	1,569.0	1,626.2	2,032.8	2,609.8	27,876.0
Little Rock, Ark	July 1, 1879	4,093.0	4,353.8	5,129.0	4,761.0	3,790.0	3,227.0	3,338.2	2,884.4	2,023.4	3,757.8	4,104.2	4,236.4	46,407.5
Los Angeles, Cal	July 1, 1877	4,128.2	3,855.8	3,838.5	3,856.8	4,040.2	3,[illegible].8	3,664.9	3,352.5	3,317.4	3,563.1	3,540.4	3,752.3	44,250.6
Louisville, Ky	Sept. 11, 1871	5,658.5	5,788.5	6,674.8	5,964.3	5,185.0	4,902.6	4,250.2	4,014.9	4,333.8	4,897.9	5,382.2	5,603.3	62,872.5
Lynchburg, Va	May 24, 1871	2,768.2	2,995.8	3,862.4	3,352.1	2,914.5	2,348.3	2,277.7	2,075.8	1,891.6	2,144.8	2,322.6	2,727.1	31,459.0
Mackinaw City, Mich	Aug. 20, 1882	9,161.0	8,092.0	7,156.0	6,944.0	7,956.0	6,252.0	6,152.0	6,326.0	6,054.0	7,613.5	8,465.0	9,284.0	89,566.0
Macon, Fort, N. C	May 23, 1878	8,462.3	8,823.7	10,390.3	9,296.7	9,289.0	9,087.7	8,165.0	8,220.0	9,095.3	10,245.3	9,261.7	8,738.7	111,655.5
Maginnis, Fort, Mont	July 14, 1882	12,083.0	8,507.0	7,542.0	8,428.0	7,803.0	8,170.0	7,510.0	7,125.5	6,547.0	8,655.5	9,776.0	10,335.0	99,279.0
Marquette, Mich	May 1, 1871	6,970.8	6,106.5	6,964.4	5,957.2	5,432.6	5,025.7	5,115.6	5,194.2	6,151.2	6,813.0	6,672.5	7,176.2	73,630.0
Memphis, Tenn	Feb. 28, 1871	4,448.8	3,982.3	4,981.8	4,892.2	3,967.6	3,525.8	3,261.1	2,958.5	3,199.4	3,630.2	4,275.9	4,330.7	47,399.8
Milwaukee, Wis	Nov. 1, 1870	8,644.1	8,310.8	9,599.4	8,536.8	7,860.8	6,813.8	6,360.1	6,624.4	7,209.2	8,418.2	8,658.8	9,110.0	96,811.4
Mobile, Ala	Nov. 7, 1870	4,507.3	4,475.0	5,174.0	4,976.9	4,733.8	4,154.9	3,918.5	3,747.6	4,105.7	4,473.4	4,337.2	4,294.8	53,236.5
Montgomery, Ala	Nov. 9, 1870	4,074.7	4,175.6	4,831.3	4,185.1	3,628.2	3,843.7	3,117.1	2,888.5	3,224.6	3,534.5	3,714.2	3,870.1	46,055.8

Moorhead, Minn	Jan. 1, 1881	8,684.3	7,719.7	10,088.0	8,552.0	9,029.8	6,972.0	7,646.7	7,447.3	7,423.0	7,875.8	8,205.7	7,963.8	95,486.0
Nashville, Tenn	Nov. 1, 1870	3,296.7	3,320.6	4,012.1	3,669.8	3,115.8	2,815.2	2,548.8	2,882.2	2,499.8	2,843.8	3,261.4	3,357.5	38,109.6
New Haven, Conn	Dec. 10, 1872	5,843.6	5,578.5	7,048.8	6,478.2	5,470.7	4,625.7	4,483.0	4,365.5	4,958.4	5,457.0	5,857.6	5,842.4	66,048.0
New London, Conn	Jan. 10, 1871	5,670.0	5,837.8	6,838.4	6,114.2	5,270.2	4,890.8	4,231.7	3,980.8	4,457.2	5,255.2	5,791.3	5,616.7	63,727.3
New Orleans, La	Nov. 1, 1870	5,782.9	5,843.0	6,890.2	6,088.4	5,179.3	4,294.6	4,229.2	4,065.8	5,116.8	5,473.1	5,705.6	5,976.5	64,745.2
New York City	Nov. 1, 1870	7,478.9	7,536.9	8,850.2	7,346.3	6,590.2	5,835.8	5,617.6	5,588.8	6,278.1	6,828.4	7,225.2	7,534.6	82,711.1
Norfolk, Va	Jan. 1, 1871	5,597.1	5,902.0	7,048.4	6,411.4	5,929.5	5,294.5	4,976.7	4,743.5	4,761.1	5,853.8	5,520.1	5,604.2	67,738.7
North Platte, Nebr	Sept. 18, 1874	7,402.2	6,816.4	9,302.2	9,756.1	10,486.1	9,343.4	8,988.8	8,537.1	8,282.1	8,532.5	7,434.2	6,740.3	102,287.1
Olympia, Wash. T	July 1, 1877	3,373.7	3,269.2	3,264.2	3,191.0	3,058.2	2,805.7	2,702.0	2,229.3	2,312.7	2,977.0	2,904.1	3,287.6	35,324.3
Omaha, Nebr	Nov. 1, 1870	6,806.6	6,354.5	8,035.4	7,854.5	7,091.5	5,777.9	5,200.1	5,050.8	5,556.6	6,385.5	7,006.3	6,591.7	78,009.6
Oswego, N. Y	Nov. 1, 1870	7,874.2	7,351.3	7,696.5	6,326.6	5,598.7	4,592.4	4,614.7	4,336.8	5,226.5	6,316.8	7,470.8	7,889.8	75,147.4
Palestine, Tex	Dec. 3, 1881	6,777.0	6,901.0	7,575.0	7,411.0	7,801.0	5,491.0	5,977.0	4,612.0	5,459.5	6,742.0	6,576.5	7,087.5	78,372.0
Pensacola, Fla	Oct. 27, 1879	5,105.0	5,620.0	6,304.8	6,437.0	6,490.8	5,974.2	4,978.5	5,210.5	5,025.8	5,853.2	5,522.2	5,360.2	68,040.5
Philadelphia, Pa	Jan. 1, 1871	7,724.2	7,397.3	9,030.7	7,995.6	7,161.8	6,450.3	6,230.7	5,678.1	5,961.2	6,890.4	6,947.8	7,475.3	84,550.7
Pike's Peak, Colo	Nov. 1, 1878	18,878.9	16,717.2	18,747.2	15,191.9	16,826.6	13,700.2	9,084.9	8,943.0	11,039.4	10,220.3	16,427.1	17,074.4	181,641.4
Pittsburg, Pa	Nov. 1, 1870	5,006.4	4,602.7	5,633.5	4,740.8	4,059.7	4,038.6	3,774.5	3,264.8	3,561.7	4,080.2	4,791.5	5,162.0	52,749.7
Port Huron, Mich	July 25, 1874	7,494.8	7,324.1	7,992.9	7,702.0	7,443.1	6,098.4	5,799.1	5,381.5	6,083.0	7,046.5	7,549.1	7,749.8	83,558.3
Portland, Me	Jan. 15, 1871	5,662.8	5,654.7	6,792.2	6,370.9	5,797.1	4,945.8	4,880.6	4,250.1	4,792.9	5,421.2	5,972.7	5,851.4	67,042.5
Portland, Oreg	Nov. 1, 1871	4,454.7	3,469.8	3,814.6	3,402.5	3,586.4	3,337.0	3,526.0	3,033.3	3,013.8	3,016.0	3,272.8	3,502.5	40,873.3
Prescott, Ariz	Nov. 19, 1873	3,512.3	3,882.5	5,134.6	6,140.2	6,071.6	5,310.4	4,281.2	3,494.2	3,621.0	4,237.8	3,568.8	3,522.8	54,694.3
Provincetown, Mass	Feb. 15, 1882	8,997.0	7,845.0	9,046.0	7,255.0	7,461.0	6,297.5	5,806.5	5,400.0	6,471.0	6,719.5	8,067.0	8,725.5	87,530.0
Red Bluff, Cal	July 1, 1877	5,693.8	5,676.2	6,721.3	6,051.3	6,204.5	5,610.2	4,531.6	3,624.8	4,454.0	5,025.4	4,220.2	4,538.8	61,259.5
Rio Grande City, Tex	May 28, 1875	5,162.8	5,311.8	5,722.0	6,720.6	7,898.4	7,204.3	7,930.8	5,417.7	4,923.8	4,090.6	4,830.6	4,398.4	72,988.7
Rochester, N. Y	Nov. 1, 1870	8,279.0	7,007.2	8,600.4	7,502.9	7,168.8	5,970.9	5,593.4	5,102.5	5,862.7	6,607.6	7,409.1	8,034.8	82,437.4
Roseburg, Oreg	July 15, 1877	2,233.0	2,108.8	2,487.8	2,602.2	2,680.3	2,730.0	2,658.0	2,446.5	1,988.2	1,950.7	1,553.5	1,841.5	27,280.5
Sacramento, Cal	July 1, 1877	4,841.5	4,451.5	5,208.3	5,445.8	5,473.0	5,504.0	5,008.3	4,380.6	3,900.7	3,896.9	3,417.4	4,100.7	56,136.5
Saint Louis, Mo	Nov. 1, 1870	7,507.3	7,004.8	8,662.0	7,680.8	7,184.2	6,405.9	5,712.5	5,456.8	6,085.5	7,036.2	7,621.2	7,593.0	84,820.9
Saint Michael's, Fort, Alaska	June 28, 1874	10,310.2	8,732.2	9,527.9	8,412.0	7,821.9	7,580.9	8,452.1	9,400.6	8,811.8	10,775.4	9,928.4	8,705.1	106,230.8
Saint Paul, Minn	Nov. 1, 1870	5,836.4	5,549.7	6,655.7	6,912.8	7,134.2	6,695.1	5,384.8	5,438.2	5,920.5	6,569.8	5,981.6	5,583.4	73,892.4
Saint Vincent, Minn	Sept. 5, 1880	7,190.3	6,965.7	8,041.3	6,826.7	7,427.3	5,932.3	6,023.7	5,203.3	5,893.7	6,480.0	7,504.5	7,397.2	80,180.8
Salt Lake City, Utah	Mar. 19, 1874	2,923.1	2,831.3	4,836.1	4,610.2	4,842.2	4,396.8	4,282.8	4,282.3	3,955.3	3,642.5	2,844.6	2,040.0	46,066.0
San Diego, Cal	Nov. 1, 1871	3,826.8	4,092.4	4,783.1	4,871.6	5,011.4	4,502.5	4,770.6	4,520.8	4,317.7	4,069.2	3,640.8	3,703.4	52,275.2
Sandusky, Ohio	Aug. 2, 1877	9,805.3	9,711.3	11,136.2	10,222.6	9,413.6	8,688.8	7,652.2	7,611.7	8,403.7	9,714.9	10,460.6	10,051.0	112,630.0
Sandy Hook, N. J	Dec. 10, 1873	10,806.8	9,910.4	12,423.9	10,207.0	9,055.0	8,430.3	8,041.6	8,342.8	9,908.2	10,923.2	11,740.4	12,457.5	122,857.0
San Francisco, Cal	Mar. 8, 1871	5,318.7	4,961.2	6,562.8	7,234.3	8,397.4	9,062.7	9,577.7	9,013.9	7,120.1	5,832.7	4,422.9	4,703.1	82,886.2
Savannah, Ga	Jan. 1, 1871	4,608.1	4,775.2	5,823.3	6,673.2	5,536.0	4,598.4	4,259.2	4,079.2	4,047.7	4,478.5	4,545.4	4,043.0	58,237.2
Shaw, Fort, Mont	Apr. 1, 1880	8,385.7	9,231.7	8,370.0	7,103.5	7,036.3	6,062.0	5,670.8	4,985.5	5,538.5	7,043.8	8,017.5	9,008.0	86,236.7
Shreveport, La	Sept. 3, 1871	3,739.2	3,923.9	4,675.9	4,616.9	3,840.0	3,273.7	3,109.6	2,711.1	2,892.8	3,117.1	3,597.2	3,743.7	43,271.0
Sill, Fort, Ind. T	June 23, 1875	7,409.7	7,785.0	9,304.5	9,887.2	9,743.3	8,751.2	7,437.3	6,088.3	7,105.7	8,315.8	7,092.7	7,259.2	95,963.0
Sitka, Alaska	Mar. 30, 1881	7,021.0	7,144.0	7,230.0	6,349.3	6,135.7	4,928.0	5,492.3	4,060.0	5,732.3	6,373.3	7,910.3	9,921.0	80,238.0
Smithville, N. C	Oct. 15, 1875	6,298.4	6,500.4	8,024.8	7,743.6	7,324.9	7,738.4	7,695.2	6,778.9	6,536.1	6,359.6	6,154.5	6,385.5	83,540.2
Spokane Falls, Wash. T	Feb. 5, 1881	3,196.5	3,420.3	3,831.3	4,928.3	4,465.7	4,322.3	4,034.7	3,472.7	2,793.7	3,349.3	2,886.3	3,017.3	43,092.0
Springfield, Ill	July 1, 1879	7,216.2	6,978.5	8,037.8	7,292.0	6,551.8	5,528.2	4,774.0	4,888.0	5,740.4	6,241.8	7,062.6	6,848.4	77,212.2
Stockton, Fort, Tex	Feb. 26, 1876	5,447.2	5,668.2	7,109.2	7,835.7	9,285.8	9,221.1	8,142.0	7,061.0	7,977.0	6,608.4	5,188.1	5,153.2	82,763.8
Toledo, Ohio	Nov. 1, 1870	7,079.2	6,199.9	7,366.9	6,780.9	6,688.3	5,607.9	5,123.7	4,892.2	5,280.1	6,290.0	6,649.5	6,967.8	76,137.1
Unalashka, Alaska	Aug. 18, 1878	9,122.7	10,254.8	9,827.7	9,413.3	8,196.5	7,679.5	6,975.5	6,751.0	9,448.5	8,767.0	8,817.8	10,598.5	110,166.5
Vicksburg, Miss	Sept. 10, 1871	4,383.4	4,322.9	5,090.1	4,834.6	3,874.0	3,186.7	3,008.5	2,835.8	2,781.8	3,596.9	4,480.5	4,623.0	47,239.0
Washington City	Nov. 1, 1870	4,750.4	4,830.9	6,418.9	5,765.2	4,830.8	4,252.8	4,062.6	3,568.7	3,889.9	4,039.3	4,456.8	4,852.9	56,196.0
West Las Animas, Colo	Oct. 1, 1881	6,517.0	5,990.0	6,674.5	8,822.0	9,615.0	6,738.5	5,554.0	6,197.0	6,612.0	6,694.0	4,756.5	5,442.0	77,989.0
Wilmington, N. C	Jan. 1, 1871	5,289.2	5,245.1	6,799.5	6,397.4	5,462.5	5,102.1	4,987.2	4,288.2	4,291.7	4,656.8	4,968.9	5,420.7	63,794.0
Yankton, Dak	Apr. 1, 1873	6,553.4	6,367.4	8,075.4	8,683.5	7,987.5	6,866.7	5,226.0	5,474.1	5,821.8	6,805.5	6,556.8	6,072.6	80,839.8
Yuma, Ariz	Nov. 18, 1873	4,155.0	4,726.3	4,371.7	4,479.5	4,330.2	3,626.0	4,431.3	4,076.1	3,035.7	3,290.8	3,717.0	3,622.5	47,773.8

APPENDIX 63.

Table showing the average hourly velocity of the wind, in miles, at stations of the Signal Service, United States Army, for each month and the year.

[Computed from the commencement of observations at each to and including December, 1883. The average hourly velocity is obtained by dividing the mean monthly movement by twenty-four times the number of days in the month.]

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		Miles.	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*
Albany, N. Y	Dec. 22, 1873	7.9	8.5	9.0	8.5	7.1	5.9	5.1	4.4	5.0	5.9	7.2	7.4	6.8
Alpena, Mich	Sept. 10, 1872	9.2	10.1	10.4	8.0	8.3	8.1	7.5	7.0	8.4	9.0	9.6	9.5	8.8
Apache, Fort, Ariz	Oct. 9, 1877	5.0	5.5	7.0	8.2	8.8	7.9	6.1	5.2	5.6	5.7	5.5	5.2	6.3
Assinaboine, Fort, Mont	Oct. 6, 1879	10.6	12.3	10.2	10.0	10.3	9.7	10.1	9.2	8.8	9.7	11.6	10.9	10.4
Atlanta, Ga	Sept. 25, 1878	10.3	11.8	11.2	9.0	7.9	7.4	7.3	7.2	7.7	8.7	9.4	9.7	8.9
Atlantic City, N. J	Dec. 10, 1873	9.8	10.8	12.0	11.7	10.1	8.7	7.7	9.0	10.4	9.6	9.7	9.6	9.9
Augusta, Ga	Nov. 2, 1870	3.5	4.3	4.9	4.5	4.0	3.9	3.8	3.1	3.4	3.0	3.7	3.3	3.8
Baltimore, Md	Jan. 1, 1871	5.5	6.1	7.1	6.8	6.0	6.0	5.6	4.9	5.2	5.3	5.5	5.7	5.8
Barnegat City, N. J	Dec. 10, 1873	13.2	13.0	13.7	13.6	11.8	10.6	9.6	10.7	12.4	12.5	13.6	13.1	12.4
Behring's Island, Behring Sea	May 22, 1882	15.6	15.1	14.4	13.4	14.0	12.0	10.5	10.4	10.7	15.2	14.4	12.9	13.2
Bennett, Fort, Dak	Dec. 22, 1879	6.8	6.4	8.0	9.0	9.9	8.2	7.8	8.7	8.5	7.8	7.5	6.0	7.6
Benton, Fort, Mont	Oct. 11, 1879	7.7	8.8	8.7	8.1	8.0	7.3	6.4	5.7	6.7	6.8	8.5	7.9	7.6
Bismarck, Dak	Sept. 15, 1874	8.1	8.6	9.7	11.6	10.8	9.4	9.2	8.7	9.1	9.6	9.0	8.2	9.3
Block Island, R. I	Sept. 1, 1880	17.1	16.6	17.8	14.8	13.9	12.3	11.3	10.5	14.2	15.0	17.1	17.3	14.8
Boisé City, Idaho	July 1, 1877	4.5	4.9	5.5	6.0	6.0	5.0	4.5	3.8	3.8	3.9	3.7	3.5	4.6
Boston, Mass	Nov. 1, 1870	9.7	10.6	11.3	10.0	8.7	7.7	7.3	7.1	8.2	8.8	10.1	9.9	9.1
Brownsville, Tex	Aug. 23, 1875	7.0	8.2	8.2	8.9	7.6	7.3	6.9	5.0	4.3	5.2	6.9	7.0	6.9
Buffalo, N. Y	Nov. 1, 1870	11.0	10.7	10.4	8.7	7.8	7.2	7.2	6.5	8.0	9.0	10.8	11.9	9.1
Buford, Fort, Dak	Oct. 23, 1878	6.2	6.4	8.1	10.2	9.0	8.4	8.7	9.2	8.4	8.8	8.5	6.7	8.3
Cairo, Ill	June 1, 1871	7.7	8.5	10.0	8.9	7.4	6.5	5.2	4.8	5.7	6.7	7.9	7.7	7.2
Cape Henry, Va	Dec. 15, 1873	12.6	13.6	14.7	13.8	11.8	11.0	9.7	9.7	12.6	13.0	13.7	13.3	12.5
Cape May, N. J	May 24, 1871	14.3	16.1	16.4	14.6	12.5	10.8	10.0	9.8	11.7	13.6	15.7	15.9	13.2
Cedar Keys, Fla	Nov. 7, 1879	9.0	9.6	11.1	10.4	9.8	9.3	8.4	9.1	8.2	9.2	7.8	8.5	9.2
Charleston, S. C	Jan. 5, 1871	7.3	8.1	8.8	8.6	8.8	8.2	7.7	7.3	7.8	7.7	7.5	7.1	7.9
Charlotte, N. C	Oct. 6, 1878	5.2	6.3	6.6	6.2	5.3	5.2	4.6	4.5	4.8	5.1	5.2	5.1	5.3
Chattanooga, Tenn	Jan. 8, 1879	5.9	7.8	7.8	7.3	5.4	5.2	4.7	4.6	4.6	4.8	5.7	6.3	5.8
Cheyenne, Wyo	Nov. 1, 1870	12.8	12.2	12.4	11.9	10.5	9.2	8.8	8.0	8.7	9.9	11.0	11.2	10.0
Chicago, Ill	Nov. 1, 1870	9.0	9.1	9.9	9.5	8.6	7.8	7.1	6.9	7.8	8.5	8.6	8.6	8.4
Chincoteague, Va	Mar. 16, 1880	12.0	13.5	15.0	14.2	13.2	11.0	10.0	10.3	11.8	13.0	13.5	11.5	12.4
Cincinnati, Ohio	Nov. 1, 1870	6.4	6.9	7.5	6.7	5.8	5.6	4.8	4.3	4.8	5.3	6.0	6.1	5.8
Cleveland, Ohio	Nov. 1, 1870	10.7	10.3	10.8	9.2	8.3	7.9	7.3	6.8	8.7	9.8	11.3	10.9	9.3
Columbus, Ohio	July 1, 1878	8.0	9.3	9.6	8.5	7.0	7.0	5.8	5.1	6.0	6.4	7.9	8.1	7.4
Concho, Fort, Tex	Oct. 10, 1875	8.1	9.1	9.4	11.3	11.3	10.4	8.8	7.1	7.7	8.1	8.0	8.5	9.0
Custer, Fort, Mont	Dec. 5, 1878	6.9	7.5	8.3	8.8	8.3	7.1	6.9	7.0	6.7	7.0	6.8	6.6	7.3

Davenport, Iowa	May 24, 1871	8.4	8.8	10.3	10.5	9.2	7.7	6.7	6.4	7.6	8.1	8.7	8.3	8.4
Davis, Fort, Tex	Dec. 24, 1877	5.5	5.8	6.2	6.9	5.7	5.2	4.7	4.5	4.3	5.0	5.1	5.9	5.4
Dayton, Wash. T	July 1, 1879	4.7	5.3	5.5	6.8	5.4	5.5	5.0	4.7	4.6	5.6	5.5	5.3	5.3
Deadwood, Dak	Dec. 25, 1877	4.0	3.5	3.7	3.8	4.1	3.8	4.1	4.5	4.2	4.4	3.6	3.5	3.9
Delaware Breakwater, Del	Jan. 28, 1880	16.0	18.2	19.8	16.6	15.7	13.3	11.6	12.2	15.2	16.4	17.1	16.8	15.7
Denver, Colo	Nov. 19, 1871	6.3	6.1	7.3	7.3	6.8	6.3	6.1	5.6	5.5	6.0	6.0	5.9	6.3
Des Moines, Iowa	Aug. 1, 1878	6.3	7.3	8.2	8.4	6.7	6.2	5.1	4.6	5.6	5.9	6.7	6.4	6.4
Detroit, Mich	Nov. 1, 1870	8.2	8.6	9.0	8.6	7.9	6.9	6.4	6.1	6.8	7.8	8.8	8.4	7.8
Dodge City, Kans	Sept. 15, 1874	10.7	11.3	13.8	14.7	14.0	13.6	12.5	11.0	12.0	11.8	10.6	10.1	12.2
Dubuque, Iowa	July 10, 1878	4.8	5.5	6.6	7.6	6.0	5.4	4.4	4.2	4.6	5.3	5.4	4.8	5.4
Duluth, Minn	Nov. 1, 1870	6.5	7.6	7.9	8.7	6.9	6.1	6.6	6.5	7.5	7.9	7.3	7.0	7.2
Eastport, Me	Apr. 1, 1873	12.4	12.7	13.0	10.2	8.4	6.8	6.3	5.9	7.6	9.6	11.9	11.9	9.7
Elliott, Fort, Tex	Nov. 29, 1879	10.5	11.2	12.8	14.4	14.2	12.7	9.9	7.9	9.7	11.2	10.4	9.5	11.2
El Paso, Tex	Nov. 5, 1877	4.9	6.2	6.7	6.5	6.0	5.4	4.9	3.6	3.9	4.4	4.8	4.6	5.2
Erie, Tex	May 25, 1873	11.9	11.8	11.4	10.9	8.9	8.3	7.2	7.0	8.8	10.2	12.6	12.8	10.2
Escanaba, Mich	May 24, 1871	9.5	10.0	10.7	10.2	9.1	8.7	8.3	7.7	9.4	10.3	9.6	9.7	9.4
Fort Smith, Ark	June 1, 1882	5.7	6.6	5.7	6.4	6.0	4.1	3.9	3.6	3.8	4.8	5.1	5.7	5.1
Galveston, Tex	Apr. 19, 1871	10.3	10.7	10.1	10.8	9.9	8.7	7.8	7.0	9.0	9.5	11.0	10.4	9.6
Grand Haven, Mich	May 24, 1871	11.6	12.3	12.2	11.8	10.6	9.1	8.4	8.1	9.9	11.7	12.4	12.0	10.8
Grant, Fort, Ariz	Nov. 1, 1875	6.3	7.7	7.5	9.1	7.9	8.0	6.7	6.1	7.3	6.8	6.6	6.6	7.2
Hatteras, N. C	Dec. 1, 1880	14.9	17.6	18.6	18.2	16.4	16.8	14.7	14.2	14.9	15.2	14.1	13.9	15.8
Helena, Mont	Oct. 15, 1879	4.9	4.8	6.7	6.9	6.7	6.5	6.2	5.4	5.3	5.2	4.9	4.9	5.7
Huron, Dak	July 1, 1881	11.3	10.6	12.6	12.7	12.0	9.3	10.1	9.4	10.6	10.0	10.8	9.5	10.7
Indianapolis, Ind	Feb. 10, 1871	6.4	6.5	7.8	7.0	5.7	5.1	4.8	4.5	4.6	5.1	5.8	6.2	5.7
Indianola, Tex	May 1, 1872	13.9	14.6	14.3	15.1	13.1	11.7	10.8	9.6	11.2	11.7	14.2	14.0	12.8
Jacksonville, Fla	Sept. 11, 1871	5.8	6.9	7.9	7.6	6.7	6.9	6.3	6.2	6.4	6.9	6.5	6.0	6.7
Keokuk, Iowa	July 16, 1871	8.3	8.5	9.7	10.2	9.1	7.7	6.2	6.2	7.4	7.9	8.4	7.6	8.1
Key West, Fla	Nov. 1, 1870	10.8	10.4	11.2	10.5	9.5	7.6	7.5	7.3	8.1	11.6	11.2	11.2	9.7
Kittyhawk, N. C	Jan. 15, 1875	15.0	16.2	15.8	16.2	14.7	13.4	12.1	12.3	15.1	15.0	16.4	15.3	14.8
Knoxville, Tenn	Jan. 1, 1871	5.9	6.8	7.4	7.1	5.7	5.4	4.7	4.3	4.4	4.5	5.4	5.8	5.6
La Crosse, Wis	Oct. 15, 1872	6.8	7.7	8.4	8.6	7.8	7.3	6.3	6.1	6.9	7.8	7.6	6.9	7.4
Leavenworth, Kans	May 21, 1871	7.2	7.6	9.3	9.3	7.8	7.2	5.5	5.2	6.4	6.6	7.4	6.8	7.2
Lewiston, Idaho	July 1, 1879	4.0	3.7	3.8	3.5	3.7	3.3	3.6	3.1	2.2	2.2	2.8	3.5	3.3
Little Rock, Ark	July 1, 1879	5.5	6.4	6.9	6.6	5.1	4.5	4.5	3.9	4.1	5.1	5.7	5.7	5.3
Los Angeles, Cal	July 1, 1877	5.5	5.7	5.2	5.4	5.4	5.1	4.9	4.5	4.6	4.8	4.9	5.0	5.1
Louisville, Ky	Sept. 11, 1871	7.6	8.6	9.0	8.3	7.0	6.8	5.7	5.4	6.0	6.6	7.5	7.5	7.2
Lynchburg, Va	May 24, 1871	3.7	4.4	5.2	4.7	3.9	3.3	3.1	2.8	2.6	2.9	3.2	3.7	3.6
Mackinaw City, Mich	Aug. 20, 1882	12.3	12.0	9.6	9.6	10.7	8.7	8.8	8.5	9.2	10.3	11.8	12.5	10.3
Macon, Fort, N. C	May 23, 1878	11.2	13.1	14.0	12.9	12.5	12.6	11.0	11.0	12.6	13.8	12.9	11.7	12.4
Maginnis, Fort, Mont	July 14, 1882	16.2	12.7	10.1	11.7	10.6	11.3	10.1	9.6	9.1	11.6	13.6	13.9	11.7
Marquette, Mich	May 1, 1871	9.4	9.0	9.4	8.8	7.3	7.0	6.9	7.0	8.5	9.2	9.3	9.6	8.4
Memphis, Tenn	Feb. 28, 1871	6.0	5.9	6.7	6.8	5.3	4.9	4.4	4.0	4.4	4.9	5.9	5.8	5.4
Milwaukee, Wis	Nov. 1, 1870	11.6	12.3	12.9	11.9	10.6	9.5	8.6	8.9	10.0	11.3	12.0	12.2	11.0
Mobile, Ala	Nov. 7, 1870	6.1	6.6	7.0	6.9	6.4	5.8	5.3	5.0	5.7	6.0	6.0	5.8	6.0
Montgomery, Ala	Nov. 9, 1870	5.5	6.2	6.5	5.8	4.9	4.6	4.2	3.9	4.5	4.7	5.2	5.2	5.1
Moorhead, Minn	Jan. 1, 1881	11.7	11.5	13.6	11.9	12.1	9.7	10.3	10.0	10.3	10.6	11.4	10.7	11.2
Nashville, Tenn	Nov. 1, 1870	4.4	4.9	5.4	5.1	4.2	3.9	3.4	3.2	3.5	3.8	4.5	4.5	4.2
New Haven, Conn	Dec. 10, 1872	7.9	8.2	9.5	9.0	7.4	6.4	6.0	5.9	6.9	7.3	8.1	7.9	7.5
New London, Conn	Jan. 10, 1871	7.6	8.6	9.2	8.5	7.1	6.1	5.7	5.3	6.2	7.1	8.0	7.5	7.2
New Orleans, La	Nov. 1, 1870	7.8	8.6	8.6	8.5	7.0	6.0	5.7	5.5	7.1	7.4	8.0	8.0	7.4
New York City	Nov. 1, 1870	9.7	10.8	11.3	9.7	8.5	7.9	7.5	7.3	8.8	9.0	10.0	10.0	9.2
Norfolk, Va	Jan. 1, 1871	7.5	8.7	9.5	8.9	8.0	7.4	6.7	6.4	6.6	7.2	7.7	7.5	7.7

Table showing the average hourly velocity of the wind in miles, &c.—Continued.

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
		Miles.	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*	*Miles.*
North Platte, Nebr	Sept. 18, 1874	9.9	10.1	12.5	13.6	14.1	13.0	12.1	11.5	11.5	11.5	10.8	9.1	11.6
Olympia, Wash. T	July 1, 1877	4.5	4.8	4.4	4.4	4.1	3.9	3.6	3.0	3.2	4.0	4.0	4.4	4.0
Omaha, Nebr	Nov. 1, 1870	9.1	9.4	10.8	10.9	9.5	8.0	7.0	6.8	7.7	8.6	9.7	8.9	8.9
Oswego, N. Y	Nov. 1, 1870	10.6	10.9	10.8	8.8	7.5	6.4	6.2	5.8	7.3	8.5	10.4	10.6	8.6
Palestine, Tex	Dec. 3, 1881	9.1	10.3	10.2	10.3	9.9	7.6	8.0	6.2	7.6	9.1	9.1	9.5	8.9
Pensacola, Fla	Oct. 27, 1879	6.9	8.3	8.6	8.9	8.7	8.8	6.7	7.0	7.0	7.9	7.7	7.2	7.8
Philadelphia, Pa	Jan. 1, 1871	10.4	10.9	12.1	11.1	9.6	9.0	8.4	7.6	8.3	9.8	9.6	10.0	9.7
Pike's Peak, Colo	Nov. 1, 1873	24.7	24.7	25.2	21.1	21.9	19.0	12.2	12.0	15.8	21.8	22.8	22.9	20.8
Pittsburg, Pa	Nov. 1, 1870	6.7	6.8	7.6	6.6	5.5	5.6	5.1	4.4	4.9	5.4	6.7	6.9	6.0
Port Huron, Mich	July 25, 1874	10.1	10.8	10.7	10.7	10.0	8.5	7.8	7.2	8.4	9.5	10.5	10.4	9.6
Portland, Me	Jan. 15, 1871	7.6	8.4	9.1	8.8	7.8	6.9	6.6	5.7	6.7	7.8	8.3	7.9	7.6
Portland, Oreg	Nov. 1, 1871	6.0	5.1	5.1	4.7	4.8	4.7	4.7	4.1	4.2	4.1	4.5	4.7	4.7
Prescott, Ariz	Nov. 19, 1873	4.0	5.7	6.9	8.5	8.2	7.4	5.8	4.7	5.0	5.7	5.0	4.2	5.9
Provincetown, Mass	Feb. 15, 1862	12.1	11.7	13.4	10.1	10.0	8.7	7.8	7.8	9.0	9.0	11.2	11.7	10.2
Red Bluff, Cal	July 1, 1877	7.4	7.9	7.3	7.3	7.5	6.8	5.7	4.9	6.4	6.8	5.4	5.8	6.6
Rio Grande City, Tex	May 28, 1875	6.9	7.8	7.7	9.8	9.9	10.0	10.7	7.8	6.8	6.3	6.7	5.9	7.9
Rochester, N. Y	Nov. 1, 1870	11.1	11.3	11.6	10.4	9.6	8.8	7.5	6.9	8.1	8.9	10.3	10.8	9.6
Roseburg, Oreg	July 15, 1877	3.0	3.1	3.3	3.6	3.6	3.8	3.6	3.3	2.8	2.6	2.2	2.3	3.1
Sacramento, Cal	July 1, 1877	6.5	6.6	7.0	7.6	7.4	7.6	6.7	5.9	5.5	5.2	4.7	5.5	6.4
Saint Louis, Mo	Nov. 1, 1870	10.2	10.3	11.6	10.7	9.7	8.9	7.7	7.4	8.5	9.5	10.6	10.2	9.6
Saint Michael's, Fort, Alaska	June 28, 1874	13.9	12.9	12.8	11.7	10.5	10.5	11.4	12.7	13.5	14.8	18.7	11.4	12.9
Saint Paul, Minn	Nov. 1, 1870	7.8	8.2	9.2	9.6	9.6	8.5	7.2	7.8	8.2	8.8	8.3	7.5	8.4
Saint Vincent, Minn	Sept. 5, 1880	9.7	10.4	10.8	9.5	10.0	8.2	8.1	7.1	8.2	8.7	10.4	9.9	9.2
Salt Lake City, Utah	Mar. 19, 1874	3.9	4.2	5.8	6.4	6.5	6.1	5.8	5.8	5.5	4.9	4.0	3.5	5.2
San Diego, Cal	Nov. 1, 1871	5.1	6.0	6.4	6.6	6.7	6.8	6.3	6.0	5.9	5.4	5.1	5.1	5.9
Sandusky, Ohio	Aug. 2, 1877	13.2	14.8	15.0	14.3	12.7	12.1	10.8	10.2	13.7	13.1	14.5	13.5	13.1
Sandy Hook, N. J	Dec. 10, 1873	14.5	14.6	16.7	14.3	12.2	11.7	10.8	11.2	13.8	14.7	16.3	16.7	14.0
San Francisco, Cal	Mar. 8, 1871	7.2	7.3	8.9	10.1	11.8	12.6	12.9	12.1	9.9	7.8	6.1	6.4	9.4
Savannah, Ga	Jan. 1, 1871	6.2	7.1	7.8	7.9	7.4	6.8	5.7	5.5	5.6	6.0	6.8	6.2	6.5
Shaw, Fort, Mont	Apr. 1, 1880	11.3	13.7	11.2	9.9	9.5	8.4	7.6	6.7	7.7	9.5	11.1	12.1	9.9
Shreveport, La	Sept. 8, 1871	5.0	5.8	6.3	6.4	5.2	4.5	4.2	3.6	4.0	4.2	5.0	5.0	4.9
Sill, Fort, Ind. T	June 23, 1875	10.0	11.5	12.3	13.7	13.1	12.2	10.0	8.2	10.0	11.2	9.9	9.8	11.0
Sitka, Alaska	Mar. 30, 1881	9.4	10.6	9.7	8.8	8.2	6.8	7.4	6.3	8.0	8.6	11.0	13.3	9.0
Smithville, N. C	Oct. 15, 1875	8.5	9.6	10.8	10.8	9.3	10.7	10.3	9.1	9.1	8.5	8.5	8.6	9.5
Spokane Falls, Wash. T	Feb. 6, 1881	4.3	5.1	5.1	6.8	6.0	6.0	5.5	4.7	3.9	4.5	4.1	4.1	5.0
Springfield, Ill	July 1, 1879	9.7	10.3	10.8	10.1	8.8	7.7	6.4	6.6	8.0	8.4	9.8	9.2	8.8
Stockton, Fort, Tex	Feb. 26, 1876	8.0	9.8	9.3	10.4	11.7	12.4	10.8	9.4	12.1	9.0	7.1	6.7	9.7
Toledo, Ohio	Nov. 1, 1870	9.5	9.2	9.9	9.4	9.0	7.9	6.9	6.6	7.8	8.5	9.2	9.4	8.6
Unalashka, Alaska	Aug. 18, 1878	12.3	15.1	13.2	13.1	11.0	10.7	9.4	9.1	13.1	11.9	12.2	14.3	12.1

Vicksburg, Miss	Sept. 10, 1871	5.9	6.4	6.8	6.7	5.2	4.4	4.0	3.8	3.9	4.8	6.2	6.2	5.4
Washington City	Nov. 1, 1870	6.4	7.1	8.6	8.0	6.5	5.9	5.5	4.8	5.8	5.4	6.2	6.5	6.4
West Las Animas, Colo	Oct. 1, 1881	8.8	8.9	9.0	12.8	12.9	9.4	7.5	8.3	9.2	9.0	6.6	7.3	9.1
Wilmington, N. C	Jan. 1, 1871	7.1	7.7	9.1	8.9	7.8	7.2	6.7	5.8	6.0	6.8	6.9	7.3	7.2
Yankton, Dak	Apr. 1, 1873	8.8	9.4	10.9	12.0	10.7	9.5	7.0	7.4	8.1	9.1	9.1	8.2	9.2
Yuma, Ariz	Nov. 18, 1873	5.6	7.0	5.9	6.2	5.8	5.0	6.0	5.5	4.2	4.4	5.2	4.9	5.5

APPENDIX 64.

Table showing the average cloudiness, scale of 0 to 10, at stations of the Signal Service, United States Army, for each month and the year. Computed from the commencement of observations to and including December, 1883, from the three telegraphic observations.

[The monthly averages are obtained by dividing the sums of the three telegraphic observations by the number of telegraphic observations taken during the month.]

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
Albany, N. Y	Dec. 22, 1873	5.8	5.4	6.1	5.9	5.1	5.0	4.8	4.9	5.1	5.6	6.7	7.1	5.60
Alpena, Mich	Sept. 10, 1872	7.1	6.1	5.9	4.9	4.9	4.7	4.2	4.1	5.4	6.1	7.8	7.8	5.70
Apache, Fort, Ariz	Oct. 9, 1877	3.4	3.7	3.2	2.8	1.7	1.0	5.2	5.0	2.2	2.0	2.2	2.7	3.00
Assinaboine, Fort, Mont	Oct. 6, 1879	5.9	5.1	5.1	4.7	4.4	4.1	3.0	3.8	3.4	5.0	5.4	4.8	4.34
Atlanta, Ga	Sept. 25, 1878	6.5	5.7	4.9	5.0	4.6	4.9	4.9	5.7	4.5	4.9	5.0	5.4	5.21
Atlantic City, N. J	Dec. 10, 1873	6.0	5.4	5.7	5.6	4.8	4.7	4.7	4.9	5.0	4.6	5.3	5.7	5.20
Augusta, Ga	Nov. 2, 1870	5.0	4.8	4.6	4.5	4.0	4.5	4.5	5.1	4.5	3.9	4.8	4.7	4.60
Baltimore, Md	Jan. 1, 1871	5.6	5.2	5.3	5.4	4.7	5.0	4.9	5.0	4.7	4.5	4.9	5.3	5.00
Barnegat City, N. J	Dec. 10, 1873	5.8	5.4	5.7	5.6	4.9	4.9	4.8	4.7	5.0	4.7	5.2	5.6	5.18
Bennett, Fort, Dak	Dec. 22, 1879	4.8	4.6	5.4	5.8	5.9	4.9	4.6	4.2	4.2	5.1	4.7	5.0	5.00
Benton, Fort, Mont	Oct. 11, 1879	5.9	5.3	5.0	5.0	4.9	4.4	2.9	2.6	3.9	5.7	5.8	5.5	4.70
Bismarck, Dak	Sept. 15, 1874	4.8	4.9	5.7	5.6	5.8	4.8	4.0	3.4	3.8	4.9	5.1	5.4	4.80
Block Island, R. I	Sept. 1, 1880	5.2	4.4	4.9	4.3	4.9	4.2	4.0	4.2	5.0	4.6	4.8	5.3	4.70
Boisé City, Idaho	July 1, 1877	6.0	6.2	5.2	5.3	5.2	4.0	2.6	2.1	3.0	4.6	4.8	6.1	4.73
Boston, Mass	Nov. 1, 1870	5.3	4.6	5.5	5.5	5.2	5.1	5.1	4.5	4.7	4.9	5.2	5.4	5.09
Brownsville, Tex	Aug. 25, 1875	6.0	5.8	5.5	5.3	4.5	3.9	4.0	4.8	4.7	4.0	5.4	5.9	4.90
Buffalo, N. Y	Nov. 1, 1870	7.6	6.3	6.4	5.6	5.2	*5.1	4.7	4.4	5.2	6.0	7.5	8.2	5.98
Buford, Fort, Dak	Oct. 23, 1878	5.2	4.8	5.2	4.7	4.6	4.7	3.6	3.3	3.3	5.3	5.3	4.8	4.60
Cairo, Ill	June 1, 1871	6.1	5.6	5.3	5.2	4.9	5.0	4.4	3.9	4.1	4.4	5.8	6.2	5.10
Cape Henry, Va	Dec. 15, 1873	5.9	5.1	5.2	5.3	4.4	4.5	4.9	5.2	4.8	4.4	5.1	5.4	5.01
Cape May, N. J	May 24, 1871	5.0	4.5	5.0	4.6	4.0	4.1	4.3	4.7	4.2	3.9	5.2	5.0	4.56
Cape Mendocino, Cal	July 27, 1882	3.8	2.5	3.1	4.4	3.9	0.9	0.7	0.9	1.4	3.8	3.5	3.5	2.70
Cedar Keys, Fla	Nov. 7, 1879	4.6	4.0	3.5	3.4	3.6	4.5	4.3	4.5	3.3	3.3	3.8	4.0	3.93
Charleston, S. C	Jan. 5, 1871	4.9	4.6	4.1	4.1	4.1	4.5	4.6	5.0	4.8	3.7	4.3	4.5	4.43
Charlotte, N. C	Oct. 6, 1878	6.5	5.2	5.2	5.4	4.9	4.9	5.1	5.2	4.6	5.1	4.9	5.2	5.19
Chattanooga, Tenn	Jan. 8, 1879	6.2	5.7	5.1	4.9	4.1	4.0	4.0	4.7	4.2	4.9	5.1	5.7	4.89
Cheyenne, Wyo	Nov. 1, 1870	3.5	3.4	4.3	4.9	5.2	3.9	4.0	3.7	3.3	3.7	3.6	3.7	3.91
Chicago, Ill	Nov. 1, 1870	5.7	5.4	5.8	5.2	4.6	5.1	4.0	3.7	4.3	5.2	5.9	5.9	5.08
Chincoteague, Va	Mar. 16, 1880	6.5	4.8	4.8	5.2	4.1	4.8	4.7	4.6	4.2	4.8	4.8	5.0	4.81
Cincinnati, Ohio	Nov. 1, 1870	6.5	6.0	5.9	5.2	4.4	5.0	4.4	4.3	4.2	4.5	5.8	6.4	5.26
Cleveland, Ohio	Nov. 1, 1870	7.5	6.4	6.6	5.4	4.7	4.7	4.5	4.1	5.0	5.7	7.4	7.6	5.80
Columbus, Ohio	July 1, 1878	7.0	6.5	6.4	5.3	4.5	5.4	4.4	4.8	4.4	5.0	5.7	7.2	5.61
Concho, Fort, Tex	Oct. 10, 1875	3.9	4.0	3.4	3.0	4.0	3.5	3.8	3.8	4.1	4.4	3.9	3.8	3.72
Custer, Fort, Mont	Dec. 5, 1878	5.1	5.2	4.7	5.2	5.2	4.5	3.5	2.6	3.0	5.0	4.7	5.8	4.56
Davenport, Iowa	May 24, 1871	5.6	5.4	5.6	5.3	5.1	5.2	4.4	4.8	4.4	5.1	5.9	6.1	5.21

Davis, Fort, Tex	Dec. 24, 1877	3.3	3.3	3.1	2.4	2.7	2.8	3.6	3.6	3.3	3.2	3.4	3.2	2.98
Dayton, Wash. T	July 1, 1879	6.8	5.6	4.7	5.5	4.8	4.2	2.6	2.2	3.3	5.4	5.8	7.0	4.81
Deadwood, Dak	Dec. 25, 1877	4.2	4.7	4.9	5.3	5.6	4.9	3.3	3.1	3.9	4.2	4.3	4.6	4.32
Delaware Breakwater, Del	Jan. 28, 1880	6.7	5.2	5.7	5.2	4.6	5.3	4.9	4.6	4.8	5.0	5.1	5.4	5.29
Denver, Colo	Nov. 19, 1871	3.2	3.5	4.1	4.8	5.0	3.6	4.1	4.1	3.1	3.4	3.3	3.4	3.77
Des Moines, Iowa	Aug. 1, 1878	4.7	4.8	5.0	5.4	5.5	5.7	4.5	4.5	4.8	5.0	4.8	5.9	5.08
Detroit, Mich	Nov. 1, 1870	7.0	5.9	6.3	5.4	4.9	5.1	4.3	4.1	4.5	5.1	6.3	6.9	5.48
Dodge City, Kans	Sept. 15, 1874	4.3	3.9	4.1	3.9	4.8	3.5	4.2	3.3	3.2	3.3	3.8	4.0	3.90
Dubuque, Iowa	July 10, 1873	5.7	5.2	5.9	5.2	5.6	5.8	4.6	4.4	5.0	5.6	6.2	6.1	5.43
Duluth, Minn	Nov. 1, 1870	5.2	5.4	5.0	5.2	5.2	5.4	4.6	4.9	5.3	6.1	6.4	5.8	5.40
Eastport, Me	Apr. 1, 1873	5.5	5.3	6.1	6.0	6.0	6.0	5.7	5.2	5.4	5.6	6.3	6.0	5.72
Elliott, Fort, Tex	Nov. 29, 1879	3.1	2.9	3.7	3.2	4.2	3.2	4.0	3.2	3.4	3.6	3.0	3.1	3.39
El Paso, Tex	Nov. 5, 1877	3.8	3.4	2.7	2.5	2.5	3.1	3.6	3.2	2.9	2.8	3.4	3.1	2.96
Erie, Pa	May 25, 1873	7.6	6.4	6.5	5.6	4.5	4.8	4.4	4.3	5.0	6.0	7.7	8.3	5.69
Escanaba, Mich	May 24, 1871	6.4	5.7	5.6	5.1	5.2	4.9	4.4	4.6	5.2	6.5	7.2	6.8	5.09
Fort Smith, Ark	June 1, 1882	5.7	6.5	5.4	4.8	3.7	3.8	4.5	3.7	3.3	5.2	4.8	4.6	4.70
Galveston, Tex	Apr. 19, 1871	5.5	5.5	5.1	4.8	4.7	4.1	4.0	4.2	4.0	3.8	4.8	5.3	4.70
Grand Haven, Mich	May 24, 1871	7.9	6.3	6.1	5.0	4.4	4.5	3.7	3.6	4.3	5.3	7.4	8.0	5.50
Grant, Fort, Ariz	Nov. 1, 1875	3.6	3.8	3.3	2.2	2.0	2.2	5.4	4.9	2.0	1.6	2.2	2.9	3.00
Hatteras, N. C	Dec. 1, 1880	5.9	4.9	4.9	5.3	4.2	4.6	4.8	5.2	4.8	5.0	5.5	4.9	5.00
Helena, Mont	Oct. 15, 1879	6.5	5.0	4.2	4.8	4.9	4.2	2.9	2.8	2.8	4.8	4.8	5.2	4.40
Huron, Dak	July 1, 1881	4.6	4.4	6.2	5.6	5.8	4.6	4.4	3.9	4.3	5.8	4.6	4.6	4.90
Indianapolis, Ind	Feb. 10, 1871	6.4	5.7	6.1	5.4	4.0	5.2	4.6	4.1	3.8	4.6	5.9	6.4	5.30
Indianola, Tex	May 1, 1872	5.5	5.8	5.6	5.0	5.0	4.0	3.8	3.9	4.0	3.8	4.9	5.6	4.70
Jacksonville, Fla	Sept. 11, 1871	4.7	4.6	3.8	4.1	4.0	4.4	3.9	4.2	4.0	4.3	4.6	4.4	4.30
Keokuk, Iowa	July 16, 1871	5.7	4.9	5.5	5.0	5.3	5.3	4.4	3.9	3.9	4.6	5.5	5.7	5.00
Key West, Fla	Nov. 1, 1870	4.2	3.5	2.9	3.1	4.8	4.8	4.9	4.9	5.2	4.6	3.8	4.0	4.20
Kitty Hawk, N. C	Jan. 15, 1875	5.2	4.8	4.9	5.1	4.2	4.3	4.6	5.2	4.8	4.0	4.9	5.0	4.80
Knoxville, Tenn	Jan. 1, 1871	6.4	5.7	5.2	5.0	4.4	4.9	4.7	4.6	4.0	4.0	5.4	5.3	5.00
La Crosse, Wis	Oct. 15, 1872	4.9	4.6	5.2	4.5	5.0	4.9	4.2	4.3	4.5	5.2	5.9	5.3	4.90
Leavenworth, Kans	May 21, 1871	5.0	4.9	5.1	5.2	5.6	4.6	4.3	3.7	4.1	4.2	4.6	5.1	4.70
Lewiston, Idaho	July 1, 1879	7.2	6.0	5.0	5.2	4.8	4.3	2.6	2.3	2.9	5.2	5.7	6.6	4.80
Little Rock, Ark	July 1, 1879	5.9	6.0	5.3	4.3	4.7	3.5	4.2	3.5	3.3	4.1	5.0	5.1	4.60
Los Angeles, Cal	July 1, 1877	3.1	3.8	4.3	4.7	4.0	4.3	3.2	2.8	2.3	2.8	2.4	3.2	3.40
Louisville, Ky	Sept. 11, 1871	6.2	5.9	5.8	5.3	4.8	5.3	4.6	3.9	4.3	4.2	5.7	6.2	5.20
Lynchburg, Va	May 24, 1871	5.2	4.7	4.7	4.8	4.3	4.7	4.6	5.0	4.2	3.9	4.5	4.6	4.00
Mackinaw City, Mich	Aug. 20, 1882	6.8	5.6	4.9	5.7	6.3	6.5	5.5	3.3	4.8	6.4	7.8	8.8	6.10
Macon, Fort, N. C	May 23, 1878	6.4	4.9	4.9	5.8	4.7	5.6	4.0	5.5	5.1	4.9	5.0	4.9	5.20
Maginnis, Fort, Mont	July 14, 1882	7.3	5.0	6.1	5.7	6.9	4.8	3.2	2.8	2.9	5.1	5.2	5.2	4.90
Marquette, Mich	May 1, 1871	6.8	6.1	5.5	5.2	4.8	4.8	4.4	4.3	5.8	6.7	7.2	7.3	5.70
Memphis, Tenn	Feb. 28, 1871	5.9	5.8	5.1	4.9	4.6	4.2	4.3	4.0	3.8	4.0	5.4	5.6	4.80
Milwaukee, Wis	Nov. 1, 1870	6.0	5.7	6.0	5.6	5.1	5.3	4.4	4.5	4.9	5.6	6.4	6.2	5.50
Mobile, Ala	Nov. 7, 1870	5.3	5.1	4.7	4.9	4.2	4.8	4.9	4.9	4.5	4.1	4.3	5.1	4.30
Montgomery, Ala	Nov. 9, 1870	6.2	5.6	4.7	4.8	4.4	5.0	4.9	4.9	4.5	4.4	4.9	5.5	4.90
Moorhead, Minn	Jan. 1, 1881	4.5	4.9	5.4	4.6	5.2	4.9	4.5	4.1	4.4	5.7	5.8	4.7	4.90
Mount Washington, N. H	Dec. 1, 1870	6.6	6.4	6.8	6.6	5.9	6.2	6.1	5.0	6.1	6.1	6.5	6.4	6.30
Nashville, Tenn	Nov. 1, 1870	6.5	6.1	5.5	5.4	5.0	5.1	4.9	4.3	4.3	4.2	5.5	6.2	5.30
New Haven, Conn	Dec. 10, 1872	5.4	4.9	5.5	5.6	5.2	5.1	5.0	4.8	4.9	4.7	5.0	5.4	5.10
New London, Conn	Jan. 10, 1871	5.1	4.6	5.2	5.2	4.6	4.6	4.7	4.5	4.8	4.6	4.9	5.1	4.80
New Orleans, La	Nov. 1, 1870	5.4	5.0	4.8	5.0	4.5	4.6	5.0	4.8	4.6	4.2	5.0	5.5	4.90
New York City	Nov. 1, 1870	5.8	5.0	5.3	5.5	4.9	4.9	4.9	4.9	4.8	4.7	5.2	5.6	5.10

Table showing the average cloudiness, scale of 0 *to* 10, *at stations of the Signal Service, United States Army, &c.*—Continued.

Stations.	Established.	January.	February.	March.	April.	May.	June.	July.	August.	September.	October.	November.	December.	Mean annual.
Norfolk, Va	Jan. 1, 1871	5.4	5.3	5.0	5.2	4.7	4.9	5.0	5.1	4.9	4.3	4.8	4.9	4.90
North Platte, Nebr	Sept. 18, 1874	4.0	4.2	5.0	4.9	5.9	4.5	4.0	3.8	3.7	4.3	4.2	4.5	4.40
Olympia, Wash T	July 1, 1877	7.8	7.5	6.8	7.0	6.4	5.9	4.6	4.7	5.1	6.9	7.4	8.0	6.50
Omaha, Nebr	Nov. 1, 1870	5.1	4.8	5.4	5.4	5.8	5.1	4.4	4.2	3.9	4.3	4.6	5.2	4.80
Oswego, N. Y	Nov. 1, 1870	7.9	7.1	6.9	5.8	5.1	5.1	4.8	4.7	5.3	6.4	8.1	8.7	6.30
Palestine, Tex	Dec. 3, 1881	6.2	6.2	5.4	5.4	4.8	4.3	4.9	4.2	3.8	5.2	5.6	5.0	5.10
Pensacola, Fla	Oct. 27, 1870	5.7	5.1	4.0	5.0	4.2	4.4	4.7	4.9	3.8	4.3	5.0	5.1	4.70
Philadelphia, Pa	Jan. 1, 1871	5.5	5.2	5.4	5 4	4.5	4.8	4.8	4.7	4.6	4.5	4.9	5.9	5.00
Pike's Peak, Colo	Nov. 1, 1873	3.9	4.2	4.5	4.6	4.7	3.7	5.0	4.9	3.8	3.7	3.5	3.6	4.10
Pittsburg, Pa	Nov. 1, 1870	7.1	6.5	6.5	5.5	4.8	4.9	4.9	4.5	5.1	5.4	6.5	7.1	5.80
Port Huron, Mich	July 25, 1874	7.1	6.3	6.6	5.7	5.2	5.1	4.6	4.7	5.0	6.2	6.8	7.9	6.00
Portland, Me	July 15, 1871	4.9	4.5	5.6	5.4	5.3	5.0	4.8	4.3	4.7	5.0	5.1	5.3	5.00
Portland, Oreg	Nov. 1, 1871	7.2	7.4	7.2	6.6	6.7	5.7	3.7	3.9	4.2	5.8	6.8	7.8	6.00
Prescott, Ariz	Nov. 19, 1878	2.8	2.6	2.9	2.6	1.7	1.3	3.2	3.3	1.7	1.6	1.7	2.5	2.30
Provincetown, Mass	Feb. 15, 1882	6.6	5.7	5.4	5.2	5.6	4.0	4.2	3.8	5.5	5.2	5.6	6.6	5.00
Red Bluff, Cal	July 1, 1877	4.4	4.7	3.8	4.1	3.5	1.3	1.1	0.6	1.1	2.2	3.0	4.3	2.80
Rio Grande City, Tex	May 28, 1875	5.9	5.0	5.0	4.3	4.1	3.7	3.4	4.6	3.9	4.1	4.5	4.7	4.50
Rochester, N. Y	Nov. 1, 1870	7.9	6.8	6.7	5.5	4.7	4.8	4.4	4.3	4.9	5.9	7.7	8.4	6.00
Roseburg, Oreg	July 15, 1877	7.2	7.0	5.6	5.8	5.1	4.3	2.6	2.3	2.9	5.6	6.4	6.6	5.10
Sacramento, Cal	July 1, 1877	4.2	4.4	3.6	3.4	2.6	1.1	0.5	0.4	0.9	1.9	2.6	4.0	2.50
Saint Louis, Mo	Nov. 1, 1870	5.5	5.3	5.4	5.0	5.0	5.0	4.4	3.6	3.6	4.0	5.4	5.8	4.80
Saint Michael's, Fort, Alaska	June 28, 1874	6.3	4.4	5.6	6.7	7.5	7.4	7.6	8.4	8.2	8.0	6.3	5.5	6.80
Saint Paul, Minn	Nov. 1, 1870	4.9	4.8	5.1	5.1	5.2	4.9	4.2	4.5	4.8	5.1	5.8	5.1	5.00
Saint Vincent, Minn	Sept. 5, 1880	4.8	4.7	5.1	4.2	4.7	4.4	4.4	3.7	4.3	6.0	5.8	4.1	4.70
Salt Lake City, Utah	Mar. 19, 1874	5.4	5.2	5.3	5.2	4.6	3.1	3.0	3.0	2.6	4.0	4.7	5.6	4.30
San Diego, Cal	Nov. 1, 1871	4.1	4.4	4.8	4.4	5.2	5.0	4.7	4.1	3.7	3.9	3.6	3.7	4.30
Sandusky, Ohio	Aug. 2, 1877	7.1	6.2	6.2	5.3	4.4	4.8	4.1	4.2	4.5	5.3	6.5	7.6	5.50
Sandy Hook, N. J	Dec. 10, 1873	5.5	5.1	5.4	5.6	4.6	4.6	4.6	4.5	5.0	4.5	4.9	5.5	5.00
San Francisco, Cal	Mar. 8, 1871	4.6	4.7	4.5	4.1	3.6	3.9	4.7	4.1	3.4	3.1	3.6	4.4	4.00
Savannah, Ga	Jan. 1, 1871	5.1	4.9	4.3	4.5	4.3	4.9	4.7	5.1	5.0	4.3	4.8	4.6	4.70
Shaw, Fort, Mont	Apr. 1, 1880	5.5	4.5	4.6	4.5	4.9	4.4	3.2	3.0	3.4	5.4	5.0	5.0	4.40
Shreveport, La	Sept. 3, 1871	6.0	5.6	5.2	5.0	4.7	4.6	4.2	3.7	3.7	3.9	4.8	5.3	4.70
Sill, Fort, Ind. T	June 23, 1875	4.6	4.8	4.2	3.6	4.6	3.5	3.9	3.2	3.5	3.7	4.0	4.6	4.01
Sitka, Alaska	Mar. 30, 1881	7.1	6.6	5.6	6.4	6.7	7.5	8.5	6.3	7.1	6.2	7.5	7.5	7.00
Smithville, N. C	Oct. 15, 1875	5.4	4.9	4.4	4.6	3.8	4.3	4.4	4.9	4.8	4.5	4.7	4.7	4.60
Spokane Falls, Wash T	Feb. 5, 1881	7.0	6.1	5.0	5.2	4.8	4.8	3.3	2.3	3.1	6.2	6.1	6.5	4.60
Springfield, Ill	July 1, 1879	6.0	4.8	5.6	5.0	4.8	5.3	3.7	3.5	3.7	4.7	5.0	6.1	4.90
Stockton, Fort, Tex	Feb. 26, 1876	2.7	3.3	2.7	2.7	3.2	2.9	3.2	3.0	2.7	2.8	3.0	3.1	3.90

Thomas, Camp, Ariz	Sept 22, 1877	3.3	3.7	3.1	2.0	1.6	2.0	4.5	4.3	2.1	2.1	2.3	2.6	2.90
Toledo, Ohio	Nov. 1, 1870	7.0	6.2	6.3	5.0	5.0	5.2	4.0	4.3	4.7	5.5	6.6	7.2	5.70
Vicksburg, Miss	Sept. 10, 1871	5.9	5.6	4.9	4.4	4.2	4.0	4.2	4.1	4.5	3.8	4.9	5.3	4.00
Washington City	Nov. 1, 1870	6.0	5.6	5.5	5.4	4.8	4.9	4.6	4.9	4.8	4.7	5.2	5.7	5.20
West Las Animas, Colo	Oct. 1, 1881	4.2	2.4	3.4	4.3	5.4	3.6	4.6	3.8	3.2	3.4	2.5	4.2	4.00
Wilmington, N. C	Jan. 1, 1871	5.3	5.8	4.8	4.7	4.6	4.9	5.0	5.4	5.1	4.2	4.9	4.9	4.90
Yankton, Dak	April 1, 1873	4.0	4.8	5.1	4.9	5.6	4.7	4.1	3.8	3.8	4.3	4.3	4.8	4.54
Yuma, Ariz	Nov. 18, 1873	2.2	2.0	1.9	1.4	0.8	0.6	1.6	2.1	0.9	1.4	1.8	1.9	1.45

APPENDIX 65.

Table showing the average number of clear, fair, and cloudy days at stations of the Signal observations at each, to and

Stations.	January.			February.			March.			April.			May.		
	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.
Albany, N. Y	6.1	12.5	12.4	8.0	10.6	9.6	6.1	12.9	12.0	8.0	11.3	10.7	9.6	13.1	8.3
Alpena, Mich	2.5	11.7	16.8	5.9	10.7	11.6	6.4	12.5	12.1	9.3	11.5	9.2	9.7	13.5	7.8
Apache, Fort, Ariz	15.6	9.8	5.6	13.6	9.4	5.2	18.6	7.6	4.8	18.0	10.4	1.6	23.6	5.8	1.6
Assinaboine, Fort, Mont	6.0	14.3	10.7	9.3	10.4	8.3	9.7	12.0	9.3	8.0	14.7	7.3	6.5	16.5	8.0
Atlanta, Ga	5.4	11.8	13.8	7.8	8.6	11.8	11.6	10.4	9.0	9.4	13.0	7.6	11.2	12.2	7.6
Atlantic City, N. J	7.9	10.7	12.4	8.9	10.0	9.3	9.2	11.8	10.0	9.3	10.0	10.7	9.6	13.8	7.6
Augusta, Ga	10.6	9.6	10.8	7.8	11.8	8.6	12.2	10.1	8.7	10.8	11.6	7.6	12.6	12.8	5.6
Baltimore, Md	7.0	13.2	10.8	7.9	12.5	7.8	8.9	11.5	10.6	7.5	12.6	9.9	10.8	11.9	8.3
Barnegat City, N. J	7.0	11.9	12.1	8.2	10.5	9.5	6.4	14.2	10.4	7.6	11.1	11.3	8.8	15.4	6.8
Bennett, Fort, Dak	7.0	18.0	6.0	9.7	10.7	7.8	7.0	15.3	8.7	6.3	12.4	11.3	5.7	13.0	12.3
Benton, Fort, Mont	6.0	11.5	13.5	7.2	11.2	9.8	7.5	13.0	10.5	9.0	12.0	9.0	6.0	13.5	11.5
Bismarck, Dak	10.2	14.2	6.6	8.3	11.0	8.9	6.4	12.9	11.7	7.7	12.4	9.9	5.5	14.6	10.9
Block Island, R. I	8.7	13.7	8.6	10.4	12.6	5.2	11.7	12.0	7.3	11.7	12.3	6.0	9.5	15.0	6.5
Boisé City, Idaho	6.0	9.8	15.2	5.3	9.2	13.7	9.3	12.5	9.2	7.7	13.3	9.0	8.0	15.5	7.5
Boston, Mass	7.8	10.2	13.0	9.3	8.9	10.0	8.7	9.5	12.8	6.9	12.0	11.1	7.4	14.2	9.4
Brownsville, Tex	8.1	8.1	14.8	7.2	8.0	13.0	7.6	10.4	13.0	6.4	13.7	9.9	9.3	15.6	6.1
Buffalo, N. Y	1.4	9.2	20.4	4.7	10.7	12.8	5.1	12.0	13.9	6.3	11.9	11.8	9.8	9.7	11.5
Buford, Fort, Dak	9.1	14.8	7.1	10.7	11.1	6.4	8.6	13.6	8.8	10.6	11.8	7.6	9.5	14.3	7.2
Cairo, Ill	6.6	11.7	12.7	7.7	10.3	10.2	8.8	11.7	10.5	8.8	11.7	9.5	8.9	14.2	7.9
Cape Henry, Va	7.2	11.1	12.7	8.5	11.1	8.6	8.4	12.5	10.1	9.9	9.9	10.2	12.0	12.1	6.9
Cape May, N. J	11.0	9.0	11.0	10.7	7.5	10.0	10.1	9.1	11.8	10.2	9.3	10.5	13.6	9.6	7.8
Cape Mendocino, Cal	12.7	13.7	4.6	18.0	7.0	3.0	20.4	1.3	9.3	11.0	15.0	4.0	11.0	15.0	5.0
Cedar Keys, Fla	8.5	14.7	7.8	13.8	9.2	5.2	14.0	12.2	4.8	15.8	10.5	3.7	13.3	13.5	4.2
Charleston, S. C	9.5	10.5	11.0	11.2	9.1	7.9	12.7	10.8	7.5	12.0	11.3	6.7	11.8	13.5	5.7
Charlotte, N. C	5.6	10.8	14.6	9.0	8.0	11.2	8.4	13.8	8.8	8.6	12.0	9.4	9.6	13.2	8.2
Chattanooga, Tenn	6.7	9.6	14.7	7.2	10.2	10.8	11.0	9.0	11.0	10.0	12.4	7.6	13.6	11.6	5.8
Cheyenne, Wyo	13.2	13.8	4.0	12.5	12.0	3.7	11.4	13.9	5.7	8.9	13.9	7.2	7.4	14.6	9.0
Chicago, Ill	7.8	12.9	10.3	8.3	11.3	8.6	7.1	13.0	10.9	8.1	12.2	9.7	11.1	11.4	8.5
Chincoteague, Va	4.7	13.0	13.3	7.3	14.3	6.4	9.5	13.1	8.4	8.0	13.8	8.2	10.5	12.5	8.0
Cincinnati, Ohio	4.8	10.2	16.0	5.9	9.8	12.5	6.1	11.9	13.0	8.2	11.8	10.0	8.8	13.4	8.8
Cleveland, Ohio	2.8	8.4	19.8	4.7	11.7	11.8	4.3	12.2	14.5	7.3	12.9	9.8	10.0	13.2	7.8
Columbus, Ohio	3.2	11.4	16.4	4.2	10.2	13.8	5.0	12.0	14.0	10.8	8.6	10.6	11.4	12.0	7.6
Concho, Fort, Tex	14.2	8.2	8.6	13.2	7.2	6.8	15.0	8.0	8.0	15.4	10.0	4.6	10.3	12.3	8.4
Custer, Fort, Mont	9.3	15.4	6.3	4.3	17.7	6.2	7.0	18.7	5.3	5.0	18.0	7.0	5.7	18.0	7.3
Davenport, Iowa	8.3	11.2	11.5	8.0	10.8	9.4	7.7	12.9	10.4	8.4	12.2	9.4	9.1	12.7	9.2
Davis, Fort, Tex	18.4	9.2	3.4	15.6	8.9	3.7	17.4	9.2	4.4	20.3	7.3	2.4	15.0	13.2	2.8
Dayton, Wash T	1.8	10.0	19.2	6.2	10.5	11.5	10.5	13.3	7.2	7.5	11.5	11.0	9.8	13.0	8.2
Deadwood, Dak	11.0	13.5	6.5	8.5	14.0	5.7	9.3	14.0	7.7	8.0	11.7	10.3	5.8	14.8	10.4
Delaware Breakwater, Del	3.0	13.0	15.0	8.8	10.2	9.2	7.0	13.8	10.2	9.5	11.8	8.7	11.8	12.7	6.5
Denver, Colo	15.8	11.4	3.8	13.0	11.7	3.5	13.3	11.1	6.6	10.3	12.3	7.4	8.9	14.9	7.2
Des Moines, Iowa	11.0	11.0	9.0	10.0	10.4	7.8	8.4	14.0	8.6	9.0	11.2	9.8	6.2	15.0	9.8
Detroit, Mich	3.8	9.6	17.6	5.8	11.4	11.0	5.5	12.0	13.5	6.9	12.8	10.3	9.2	13.5	8.3
Dodge City, Kans	11.6	10.0	9.4	12.6	9.2	6.4	11.7	11.9	7.4	12.2	11.8	6.0	6.7	14.6	9.7
Dubuque, Iowa	6.2	12.5	12.3	7.7	10.2	10.3	5.8	13.2	12.0	7.1	12.2	10.7	7.2	12.1	11.7
Duluth, Minn	10.4	11.3	9.3	8.5	9.8	9.9	10.9	10.8	9.3	9.5	11.1	9.4	8.3	12.3	10.4
Eastport, Me	7.1	12.3	11.6	7.0	11.1	10.1	6.3	10.5	14.2	6.9	8.4	14.7	6.1	11.0	13.9
Elliott, Fort, Tex	17.0	6.8	7.2	16.3	5.5	6.4	13.9	12.5	4.6	18.5	5.2	6.3	11.8	12.5	6.7
El Paso, Tex	17.4	10.4	3.2	17.9	6.3	4.0	20.8	7.6	2.6	22.5	6.5	1.0	24.0	6.0	1.0
Erie, Pa	2.2	10.1	18.7	4.6	11.1	12.5	4.9	11.3	14.8	6.5	13.6	9.9	10.6	12.6	7.8
Escanaba, Mich	4.6	13.2	13.2	5.8	11.6	10.8	7.6	12.3	11.1	8.4	12.6	9.0	8.1	12.9	10.0
Fort Smith, Ark	9.5	8.6	12.9	6.0	7.0	15.0	9.0	12.0	10.0	14.0	9.0	7.0	14.0	10.0	7.0
Galveston, Tex	8.3	9.2	13.5	7.4	10.2	10.6	8.3	12.5	10.2	9.8	10.3	9.9	9.5	15.0	6.5
Grand Haven, Mich	1.9	8.6	20.5	5.0	10.8	12.4	4.9	13.0	13.1	9.2	12.0	8.8	12.1	11.6	7.3
Grant, Fort, Ariz	15.8	9.6	5.6	13.2	8.8	6.2	16.8	9.0	5.2	20.5	8.5	1.0	23.0	5.8	2.2
Hatteras, N. C	5.3	15.3	10.4	8.0	12.0	8.0	9.0	11.0	11.0	6.7	14.3	9.0	10.3	13.3	7.4
Helena, Mont	2.3	15.3	13.4	6.0	14.7	7.3	10.7	14.0	6.3	8.5	13.8	7.7	5.5	17.8	7.7
Huron, Dak	8.0	18.5	4.5	10.5	11.5	6.0	4.0	16.0	11.0	7.5	12.5	10.0	7.5	12.5	11.0
Indianapolis, Ind	5.3	10.5	15.2	6.5	9.4	12.3	6.5	10.6	13.9	7.2	13.0	9.8	9.5	12.5	9.0
Indianola, Tex	7.9	12.5	10.6	6.1	11.0	11.1	6.9	14.3	9.8	8.7	12.5	8.8	8.0	15.0	8.0
Jacksonville, Fla	9.0	12.8	9.2	9.7	10.4	8.1	12.7	13.0	5.3	12.0	11.8	6.2	10.7	14.8	5.5
Keokuk, Iowa	5.4	11.7	13.9	5.9	11.1	11.2	4.0	14.4	12.6	5.0	14.2	10.8	4.1	16.2	10.7
Key West, Fla	11.3	14.7	5.0	11.7	12.6	3.9	15.8	12.5	2.7	13.9	13.3	2.8	9.3	16.9	4.8
Kitty Hawk, N. C	9.7	12.0	9.3	9.7	9.8	8.7	10.2	11.6	9.2	9.4	13.6	7.0	12.2	12.5	6.3
Knoxville, Tenn	6.1	10.2	14.7	7.3	9.5	11.4	9.1	11.4	10.5	9.8	10.6	9.6	11.4	13.4	6.2
La Crosse, Wis	9.0	12.5	9.5	8.7	11.8	7.7	8.3	12.8	9.9	9.7	11.6	8.7	9.4	12.2	9.4

APPENDIX 65.

Service, United States Army, for each month of the year. (Compiled from the commencement of including December, 1883.)

June.			July.			August.			September.			October.			November.			December.		
Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.
8.1	13.3	8.6	10.0	13.8	7.2	12.3	12.3	6.4	9.2	11.7	9.1	8.1	12.6	10.3	4.5	11.4	14.1	4.1	11.1	15.8
9.7	13.7	6.6	11.1	14.2	5.7	11.3	14.1	5.6	8.3	11.9	9.8	6.4	10.8	13.8	1.8	11.4	16.8	1.6	8.6	20.8
23.0	4.8	2.2	9.3	13.0	8.7	10.7	14.0	6.3	17.9	8.1	4.0	22.4	6.8	1.8	21.3	6.2	2.5	17.5	9.2	4.3
12.5	11.0	6.5	13.6	16.1	1.3	15.3	13.5	2.2	12.8	13.0	4.2	8.5	13.0	9.5	6.2	15.0	8.8	9.0	14.2	7.8
7.4	15.4	7.2	9.2	15.4	6.4	6.8	14.6	9.6	11.6	11.2	7.2	11.2	10.1	9.7	10.2	10.3	9.5	8.5	11.7	10.8
9.9	13.5	6.6	10.9	13.4	6.7	11.1	10.3	9.6	10.6	10.5	8.9	12.8	10.0	8.2	9.7	10.3	10.0	9.4	11.5	10.1
8.4	15.3	6.3	10.4	14.4	6.2	8.1	15.2	7.7	10.3	12.5	7.2	14.2	10.1	6.7	10.4	10.1	9.5	10.9	10.6	9.5
7.2	15.6	7.2	9.2	14.5	7.3	10.1	11.9	9.0	10.5	11.2	8.3	11.1	12.2	7.7	9.8	11.1	9.1	8.0	13.7	9.3
7.0	16.8	6.2	9.1	15.3	6.6	9.7	14.3	7.0	9.6	12.7	7.7	10.8	12.1	8.1	9.6	10.4	10.0	8.0	12.7	10.3
10.3	12.0	7.7	9.0	13.7	8.3	10.3	15.7	5.0	10.7	15.0	4.3	9.1	14.1	7.8	9.0	14.2	6.8	8.5	15.0	7.5
9.2	14.4	6.4	15.3	13.0	2.7	16.7	11.3	3.0	10.5	13.5	6.0	6.0	13.8	11.2	5.8	14.2	10.0	4.7	16.5	9.8
6.4	15.9	7.7	10.9	15.1	5.0	13.0	13.9	4.1	11.7	12.5	5.8	9.5	12.0	9.5	6.9	13.5	9.6	8.2	14.3	8.5
10.3	14.3	5.4	14.7	12.3	4.0	11.3	15.3	4.4	9.8	13.0	7.2	11.2	12.0	7.8	10.0	12.0	8.0	8.5	14.0	8.5
11.5	14.3	4.2	17.3	12.3	1.4	21.3	8.3	1.4	17.2	8.7	4.1	12.3	10.1	8.6	10.3	10.6	9.1	7.0	9.4	14.6
7.7	11.9	10.4	7.3	13.9	9.8	11.4	11.0	8.6	10.8	9.9	9.3	9.7	11.4	9.9	8.7	10.4	10.9	7.3	11.3	12.4
13.7	12.7	3.6	13.3	14.2	3.5	9.9	16.1	5.0	11.8	12.6	5.6	12.9	13.6	4.5	8.5	12.0	9.5	7.6	11.9	11.5
7.3	14.2	8.5	9.2	15.5	6.3	10.4	14.0	6.6	8.4	12.4	9.2	7.5	10.7	12.8	2.2	9.5	18.3	0.6	8.2	22.2
8.6	14.8	6.6	13.0	14.6	3.4	16.2	11.2	3.6	15.0	11.6	3.4	8.6	12.8	9.6	6.0	16.4	7.6	9.4	14.5	7.1
9.4	14.8	5.8	11.9	12.6	6.5	14.8	12.3	3.9	13.7	11.3	5.0	13.1	10.9	7.0	8.6	10.5	10.9	7.8	10.5	12.7
10.3	13.5	6.2	8.6	15.3	7.1	8.8	14.3	7.9	10.7	10.4	8.9	12.8	10.2	8.0	10.0	9.3	10.7	8.0	11.9	11.1
12.5	9.6	7.9	12.7	11.0	7.3	12.9	8.6	9.5	13.0	8.4	8.6	14.8	7.9	8.3	10.0	8.3	11.7	9.5	9.4	12.1
24.0	6.0	0.0	26.0	5.0	0.0	25.5	5.0	0.5	22.5	5.5	2.0	14.0	12.5	4.5	11.5	14.5	4.0	12.0	15.0	4.0
8.2	18.0	3.8	11.5	14.2	5.3	11.7	14.5	4.8	15.5	12.5	2.0	18.3	8.5	4.2	13.8	10.2	6.0	14.0	11.4	5.6
9.5	14.3	6.2	10.4	14.6	6.0	9.2	14.5	7.3	10.5	10.5	9.0	14.0	10.0	7.0	11.5	10.5	8.0	11.7	10.7	8.6
8.0	15.3	6.7	7.4	16.8	6.8	8.6	13.0	9.4	10.6	10.8	8.6	10.4	10.2	10.4	11.8	7.9	10.3	9.3	11.5	10.2
11.8	15.4	2.8	11.6	15.6	3.8	8.0	16.6	6.4	12.8	12.6	4.6	10.0	12.6	8.4	10.4	9.4	10.2	8.6	10.6	11.8
11.3	13.4	5.3	12.5	13.2	5.3	12.3	14.5	4.2	16.5	9.7	3.8	15.1	10.6	5.3	13.4	12.3	4.3	13.4	13.4	4.2
7.4	14.5	8.1	12.9	12.5	5.6	12.5	13.6	4.9	10.9	12.7	6.4	9.1	12.6	9.3	6.6	10.1	13.3	6.7	11.8	12.5
7.5	18.0	4.5	9.0	16.2	5.8	10.7	12.5	7.8	11.2	12.3	6.5	10.0	12.2	8.8	10.5	11.0	8.5	9.1	13.3	8.6
6.3	12.9	10.8	9.2	13.2	8.6	10.5	12.8	7.7	11.2	10.8	8.0	10.7	11.3	9.0	7.2	11.4	11.4	6.0	10.9	14.1
8.7	13.6	7.7	9.6	15.7	5.7	12.2	13.4	5.4	9.4	11.4	9.2	8.7	10.3	12.0	3.3	9.5	17.2	2.0	9.5	19.5
8.2	13.2	8.6	9.8	16.4	4.8	12.5	11.0	7.5	10.5	12.5	7.0	9.0	12.7	9.3	6.0	12.5	11.5	3.0	10.5	17.5
15.7	10.4	3.9	13.7	12.7	4.6	14.0	13.7	3.3	13.1	10.6	6.3	14.4	10.0	6.6	13.6	9.6	6.8	14.7	8.0	8.3
8.7	16.0	5.3	11.7	16.3	3.0	15.8	13.0	2.2	15.8	11.2	3.0	8.8	13.8	8.4	6.4	16.2	7.4	7.6	12.0	11.4
7.1	14.8	8.1	10.7	15.1	5.2	12.2	12.9	5.9	10.9	12.8	6.3	8.8	12.0	10.2	7.1	11.3	11.6	6.1	12.2	12.7
16.8	11.3	1.9	15.5	11.7	3.8	16.5	9.8	4.7	18.4	6.8	4.8	18.5	9.3	3.2	13.8	7.2	9.0	17.4	9.4	4.2
11.0	13.2	5.8	18.5	10.5	2.0	21.0	9.0	1.0	14.5	12.3	3.2	8.2	13.0	9.8	9.5	10.5	10.0	5.4	9.4	16.2
7.4	17.0	5.6	16.0	12.0	3.0	15.5	12.2	3.3	19.6	8.2	2.2	14.8	10.7	5.5	14.0	9.7	6.3	11.0	13.2	6.8
7.2	14.8	8.0	10.0	14.2	6.8	10.0	14.2	6.8	10.2	12.0	7.8	11.8	10.0	9.2	9.5	10.2	10.3	6.5	15.5	9.0
13.7	12.7	3.6	12.6	14.2	4.2	12.0	14.0	5.0	17.0	8.8	4.2	16.2	9.8	5.0	14.7	10.7	4.6	14.7	13.5	2.8
5.8	13.6	10.6	10.6	14.2	6.2	11.0	13.1	6.9	11.3	12.2	6.5	10.5	11.8	8.7	10.7	11.3	8.0	6.7	13.5	10.8
8.4	13.3	8.3	9.8	14.9	6.3	11.4	12.8	6.8	9.2	12.9	7.9	8.5	12.1	10.4	5.0	10.9	14.1	2.4	11.6	17.0
11.6	14.0	4.4	10.7	14.7	5.6	14.8	12.0	4.2	14.3	11.8	3.9	16.0	8.7	6.3	12.9	11.4	5.7	11.9	12.1	7.0
5.2	12.9	11.9	9.4	14.8	6.8	9.4	14.5	7.1	8.4	13.4	8.2	6.7	12.6	11.7	5.0	11.7	13.3	5.5	12.0	13.5
6.5	13.3	10.2	9.6	15.4	6.0	9.9	12.9	8.2	8.0	11.7	10.3	7.0	9.5	14.5	5.1	11.1	13.8	7.8	10.9	12.3
5.2	11.5	13.3	5.2	14.0	11.8	8.0	11.5	11.5	8.1	10.5	11.4	7.6	11.1	12.3	5.4	10.8	13.8	5.8	11.6	13.6
16.2	9.0	4.8	10.2	11.8	9.0	16.0	10.4	4.6	17.5	6.2	6.3	16.2	7.3	7.5	16.8	7.3	5.9	18.0	6.8	6.2
20.8	9.0	0.2	10.2	17.4	3.4	18.4	10.8	1.8	21.3	6.2	2.5	22.6	7.8	0.6	20.0	6.8	3.2	21.3	7.8	1.9
8.7	13.8	7.5	10.5	15.0	5.5	11.3	14.2	5.5	8.7	12.2	9.1	7.4	9.2	14.4	1.8	8.9	19.3	1.5	6.7	22.8
7.8	14.7	7.5	10.1	14.7	6.2	10.4	13.3	7.3	7.8	13.7	8.5	5.3	11.0	14.7	3.6	11.2	15.2	3.6	11.7	15.7
13.0	13.5	3.5	11.0	14.0	6.0	16.0	10.5	4.5	16.5	8.5	5.0	9.0	13.0	9.0	10.0	12.5	7.5	11.0	10.5	9.5
11.8	13.4	4.8	10.8	16.5	3.7	12.0	14.0	5.0	12.5	11.8	5.7	14.5	10.5	6.0	10.4	10.5	9.1	8.7	10.5	11.8
9.5	13.7	6.8	14.4	12.6	4.0	14.0	12.8	4.2	10.6	12.9	6.5	8.1	10.5	12.4	3.0	9.5	17.5	1.5	7.6	21.9
19.5	8.7	1.8	7.3	16.5	7.2	9.2	15.0	6.8	19.5	8.0	2.5	23.2	5.5	2.3	19.5	7.8	2.7	17.7	8.0	5.3
6.3	20.3	3.4	8.3	14.3	8.4	8.7	11.3	11.0	9.0	11.0	10.0	8.0	15.0	8.0	8.3	13.7	8.0	7.0	16.3	7.7
8.5	15.2	6.3	14.8	14.2	2.0	18.5	10.5	2.0	16.8	10.8	2.4	8.8	15.7	6.5	8.8	14.7	6.5	8.0	14.0	9.0
10.0	16.5	3.5	11.0	14.7	5.3	13.7	13.0	4.3	11.3	13.3	5.4	5.7	14.7	10.6	11.3	12.0	6.7	10.3	14.0	6.7
6.6	13.8	9.6	9.3	14.2	7.5	11.0	14.1	5.9	12.0	11.3	6.7	9.6	12.7	8.7	6.1	10.2	13.7	5.2	10.1	15.7
9.4	16.9	3.7	12.2	16.6	2.2	12.2	15.7	3.1	12.2	12.7	5.1	14.5	11.7	4.8	9.7	11.6	8.7	8.6	10.5	11.9
8.8	14.7	6.5	10.2	16.0	4.8	9.7	16.3	5.0	8.9	12.5	8.6	11.5	11.3	8.2	9.8	11.1	9.1	10.2	12.0	8.8
3.2	15.4	11.4	6.4	16.6	8.0	8.5	16.0	6.5	9.2	13.1	7.7	8.0	13.0	10.0	5.1	11.8	13.1	5.2	11.3	14.5
6.2	18.6	5.2	5.7	19.8	5.5	5.1	20.1	5.8	4.2	19.3	6.5	8.0	15.8	7.2	11.2	13.4	5.4	11.0	15.5	4.5
11.2	13.2	5.6	9.0	16.0	6.0	8.2	15.6	7.2	11.1	10.9	8.0	11.9	10.9	8.2	10.7	11.1	8.2	8.9	14.0	8.1
8.5	14.7	6.8	10.3	14.5	6.2	9.9	14.8	6.3	14.1	9.5	6.4	14.8	9.0	7.2	8.5	10.7	10.8	8.5	10.4	12.1
8.4	13.8	7.8	11.0	13.8	6.2	11.0	13.6	6.4	10.7	11.7	7.6	9.0	11.5	10.5	6.0	11.2	12.8	8.2	12.4	10.4

Table showing the average number of clear,

Stations.	January.			February.			March.			April.			May.		
	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.
Leavenworth, Kans	9.6	11.0	10.4	9.0	11.0	8.2	8.8	13.2	9.0	9.0	10.1	10.9	6.8	13.5	10.7
Lewiston, Idaho	3.2	7.8	20.0	5.8	9.2	13.2	9.8	12.0	9.2	9.2	10.5	10.3	9.5	13.5	8.0
Little Rock	6.8	10.6	13.6	8.0	6.5	13.7	11.0	9.2	10.8	12.3	10.5	7.2	10.5	12.5	8.0
Los Angeles, Cal	17.5	8.5	5.0	13.0	9.5	5.7	12.5	10.8	7.7	10.2	12.5	7.3	13.5	11.8	5.7
Louisville, Ky	6.3	9.2	15.5	6.7	10.5	11.0	7.5	11.3	12.2	8.6	11.0	10.4	11.2	11.6	8.2
Lynchburg, Va	8.8	11.8	10.4	9.3	11.3	7.6	11.9	10.7	8.4	10.2	11.2	8.6	12.7	11.6	6.7
Mackinaw City, Mich	3.0	16.0	12.0	9.0	9.0	10.0	11.0	11.0	9.0	7.0	14.0	9.0	5.0	13.0	13.0
Macon, Fort, N. C	4.0	13.7	13.3	8.0	11.1	9.1	9.7	12.0	9.3	8.0	9.3	12.7	8.0	16.7	6.3
Maginnis, Fort, Mont	2.0	14.0	15.0	8.0	15.0	5.0	9.0	7.0	15.0	7.0	12.0	11.0	5.0	11.0	15.0
Marquette, Mich	3.7	12.6	14.7	5.1	10.8	12.3	7.6	12.2	11.2	8.6	13.2	8.2	9.3	12.7	9.0
Memphis, Tenn	7.7	9.0	14.3	8.2	8.2	11.8	9.8	10.2	11.0	10.4	10.4	9.2	10.2	13.7	7.1
Milwaukee, Wis	5.0	15.2	10.8	6.0	12.6	9.6	6.5	13.5	11.0	6.7	13.7	9.6	9.1	13.1	8.8
Mobile, Ala	8.2	11.8	11.0	8.7	10.9	8.6	11.4	10.5	9.1	10.2	10.6	9.2	12.3	12.5	6.2
Montgomery, Ala	6.0	11.0	14.0	7.2	10.2	10.8	11.2	10.2	9.6	10.4	10.5	9.1	11.3	14.1	5.6
Moorhead, Minn	10.0	15.0	6.0	7.3	12.4	8.3	5.7	15.7	9.6	9.0	14.0	7.0	9.3	11.3	10.4
Mount Washington, N. H	4.3	10.6	16.1	5.8	8.4	14.0	5.7	9.3	16.0	6.0	9.0	15.0	7.3	11.7	12.0
Nashville, Tenn	5.7	10.7	14.6	6.4	9.5	12.3	8.6	11.0	11.4	7.9	12.4	9.7	9.5	13.8	7.7
New Haven, Conn	8.1	11.9	11.0	8.5	10.4	9.3	7.5	12.5	11.0	6.6	12.1	11.3	9.0	12.9	9.1
New London, Conn	8.9	13.1	9.0	10.8	10.5	6.9	8.8	12.7	9.5	7.9	13.4	8.7	10.4	13.1	7.5
New Orleans, La	7.6	12.2	11.2	8.3	10.5	9.4	10.1	10.6	10.3	10.6	10.3	9.1	10.5	14.3	6.2
New York City	7.6	11.6	11.8	8.0	10.5	9.7	7.5	13.5	10.0	7.6	12.4	10.0	9.7	13.0	8.3
Norfolk, Va	8.8	11.2	11.0	8.6	10.9	8.7	10.0	10.8	10.2	9.5	10.5	10.0	11.0	12.3	7.7
North Platte, Nebr	11.3	14.1	5.6	10.3	12.9	5.0	8.9	14.1	8.0	9.0	14.9	6.1	5.8	14.6	10.6
Olympia, Wash. T	2.1	9.2	19.7	2.7	6.8	18.7	3.7	10.5	16.8	3.3	12.8	13.9	5.8	11.2	14.0
Omaha, Nebr	9.3	12.1	9.6	9.3	10.5	8.4	9.2	12.2	9.6	8.6	10.5	10.9	7.1	10.8	13.1
Oswego, N. Y	1.2	7.2	22.6	3.5	8.8	15.9	4.2	10.2	16.6	6.7	10.4	12.9	9.3	12.1	9.6
Palestine, Tex	10.0	11.0	10.0	5.0	7.0	16.0	9.3	10.7	11.0	7.5	16.5	6.0	9.0	15.5	6.5
Pensacola, Fla	5.8	14.5	10.7	9.0	10.8	8.4	13.5	10.0	7.5	9.5	12.2	8.3	11.8	12.5	6.7
Philadelphia, Pa	6.5	11.5	13.0	7.7	10.2	10.3	7.5	11.5	12.0	7.8	11.2	11.0	11.3	10.5	9.2
Pike's Peak, Colo	13.8	11.6	5.6	9.9	13.0	5.3	11.0	12.6	7.4	7.8	14.6	7.6	7.1	16.8	7.1
Pittsburg, Pa	4.0	11.4	15.6	5.0	11.6	11.6	4.6	13.8	12.6	7.0	13.3	9.7	10.3	13.1	7.6
Port Huron, Mich	3.3	12.3	15.4	5.1	11.1	12.0	4.3	13.8	12.9	7.0	12.2	10.8	7.5	12.9	9.6
Portland, Me	9.7	12.0	9.3	9.8	11.2	7.2	7.2	11.6	12.2	7.7	11.4	10.9	8.3	11.8	10.9
Portland, Oreg	3.4	7.0	20.6	2.3	6.3	19.6	4.4	7.0	19.6	5.2	9.2	15.6	5.1	9.9	16.0
Prescott, Ariz	18.4	10.2	2.4	16.9	7.9	3.4	17.4	9.8	3.8	20.3	7.3	2.4	25.3	4.7	1.0
Provincetown, Mass	3.0	15.0	13.0	5.5	13.5	9.0	7.0	16.5	7.5	10.0	12.0	8.0	6.0	16.0	9.0
Red Bluff, Cal	13.7	8.3	9.0	10.8	8.7	8.7	14.0	10.2	6.8	13.2	9.7	7.1	16.0	9.8	5.2
Rio Grande City, Tex	7.5	11.2	12.3	9.5	9.2	9.5	10.8	11.6	8.6	12.2	11.8	6.0	8.0	16.8	6.2
Rochester, N. Y	1.5	8.2	21.3	3.3	10.8	14.1	3.9	11.0	16.1	7.3	10.5	12.2	9.2	12.5	9.3
Roseburg, Oreg	2.2	10.0	18.8	3.7	7.5	17.0	7.3	9.7	14.0	4.3	11.2	14.5	8.5	10.5	12.0
Sacramento, Cal	12.5	9.8	8.7	12.0	8.8	7.4	15.8	7.7	7.5	14.7	10.3	5.0	20.2	7.5	3.3
Saint Louis, Mo	8.8	11.3	10.9	8.5	10.5	9.2	7.7	11.9	11.4	9.4	11.8	8.8	9.8	11.5	9.7
Saint Michael's, Fort, Alaska	5.6	9.1	15.3	12.7	6.9	8.6	8.7	10.2	12.1	5.8	8.2	16.0	3.8	9.1	18.1
Saint Paul, Minn	8.0	13.0	10.0	8.8	10.4	9.0	8.3	12.0	10.7	8.2	12.0	9.8	8.8	14.2	8.0
Saint Vincent, Minn	9.3	16.3	5.4	8.0	12.0	8.0	7.7	16.0	7.3	11.3	14.3	4.4	9.3	15.3	6.4
Salt Lake City, Utah	7.8	11.6	11.6	7.7	10.3	10.2	10.4	10.6	10.0	7.7	12.7	9.6	10.9	12.8	7.3
San Diego, Cal	11.3	11.2	8.5	9.0	11.3	7.9	8.7	12.7	9.6	10.2	11.9	7.9	8.0	12.1	10.9
Sandusky, Ohio	4.9	10.3	15.8	5.4	10.4	12.4	5.3	13.2	12.5	7.4	12.4	10.2	11.4	13.0	6.6
Sandy Hook, N. J	7.7	11.8	11.5	9.1	11.0	8.1	7.4	14.7	8.9	7.3	12.1	10.6	10.0	13.8	7.2
San Francisco, Cal	12.0	9.6	9.4	9.6	10.3	8.3	11.8	11.4	7.8	12.4	11.3	6.3	15.0	10.2	5.8
Savannah, Ga	9.0	10.8	11.2	9.1	10.0	9.1	11.4	11.4	8.2	11.2	10.7	8.1	10.6	13.9	6.5
Shaw, Fort, Mont	6.3	16.0	8.7	9.7	12.7	5.6	10.7	12.3	8.0	10.0	12.0	8.0	7.0	17.8	6.2
Shreveport, La	7.8	10.2	13.0	8.2	9.5	10.5	8.5	12.6	9.9	9.7	12.4	7.9	9.1	14.8	7.1
Sill, Fort, Ind. T	10.3	12.7	8.0	9.3	10.0	8.9	11.7	12.7	6.6	13.3	11.8	4.9	10.7	13.8	6.5
Sitka, Alaska	4.0	11.0	16.0	5.3	9.7	13.2	7.3	9.0	14.7	5.8	9.5	14.7	7.2	10.2	13.6
Smithville, N. C	7.2	12.0	11.8	9.0	9.5	9.7	11.2	10.2	9.6	9.6	11.2	9.2	11.9	13.2	5.9
Spokane Falls, Wash. T	3.0	13.5	14.5	7.7	7.3	13.0	10.0	12.3	8.7	8.3	12.4	9.3	8.3	15.7	7.0
Springfield, Ill	7.2	11.5	12.3	9.0	10.2	9.0	8.5	11.5	11.0	9.8	12.7	7.5	10.2	13.0	7.8
Stockton, Fort, Tex	20.7	5.5	4.8	17.0	7.7	3.5	21.5	6.6	2.9	19.2	7.5	3.3	15.5	11.5	4.0
Thomas, Camp, Ariz	16.7	10.3	4.0	12.4	13.0	2.8	17.3	10.0	3.7	20.0	7.0	3.0	24.5	5.5	1.0
Toledo, Ohio	3.6	11.0	16.4	4.7	11.8	11.7	5.8	9.9	15.3	6.5	12.6	10.9	9.6	12.2	9.2
Unalashka, Alaska	1.8	5.0	24.2	1.0	3.2	24.0	3.0	6.0	22.0	0.9	3.1	26.0	0.9	7.1	23.0
Vicksburg, Miss	6.9	9.9	14.2	7.4	9.9	10.9	10.2	10.6	10.2	10.8	11.8	7.4	12.6	11.7	6.7
Washington City	6.0	11.8	13.2	6.8	11.8	9.6	7.3	12.7	11.0	8.1	12.0	9.9	10.8	11.8	8.4
West Las Animas, Colo	12.0	11.0	8.0	19.5	5.5	3.0	15.0	14.0	2.0	11.5	13.5	5.0	5.5	19.5	6.0
Wilmington, N. C	9.0	10.4	11.6	8.7	7.9	11.6	11.6	9.4	10.0	11.6	10.2	8.2	10.9	12.5	7.6
Yankton, Dak	10.9	14.1	6.0	9.8	10.6	7.8	9.1	12.8	9.1	10.0	11.7	8.3	8.6	12.2	10.2
Yuma, Ariz	20.8	8.1	2.1	19.2	6.6	2.4	23.1	6.6	1.3	24.0	5.2	0.8	28.0	2.6	0.4

fair, and cloudy days, &c.—Continued.

June.			July.			August.			September.			October.			November.			December.		
Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.	Clear.	Fair.	Cloudy.
9.0	14.8	6.2	11.4	14.0	5.6	13.8	12.4	4.8	12.4	11.6	6.0	11.7	12.5	6.8	10.3	12.1	7.6	9.1	11.8	10.1
11.8	11.5	6.7	16.8	11.7	2.5	21.3	7.6	2.1	17.5	7.7	4.8	8.0	10.5	12.5	7.5	9.5	13.0	7.2	8.0	15.8
13.5	13.7	2.8	11.6	13.4	6.0	16.2	10.8	4.0	15.4	9.0	5.6	12.7	11.9	6.4	12.0	7.8	10.2	11.5	8.2	11.3
8.5	17.2	4.3	10.4	19.7	0.9	16.0	13.7	1.3	17.1	11.6	1.3	16.4	11.6	3.0	18.8	9.3	1.9	17.4	8.6	5.0
6.8	13.7	9.5	10.0	14.3	6.7	11.5	13.7	5.8	11.5	12.0	6.5	12.0	11.9	7.1	7.3	10.2	12.5	5.8	0.2	15.0
9.8	12.0	8.2	10.2	14.2	6.6	10.2	11.8	9.0	12.3	10.9	6.8	14.8	9.4	6.8	11.2	11.8	7.0	10.6	11.6	8.8
4.0	15.0	11.0	5.0	18.0	8.0	16.0	10.0	5.0	9.5	14.0	6.5	3.0	15.5	12.5	1.5	9.5	19.0	0.5	6.0	24.5
4.7	17.3	8.0	9.0	12.3	9.7	7.3	14.0	9.7	9.7	11.7	8.6	7.3	16.7	7.0	9.7	12.0	8.3	7.3	16.7	7.0
11.0	11.0	8.0	15.6	12.7	2.7	15.5	12.5	3.0	19.0	6.0	5.0	9.0	13.0	9.0	8.0	13.5	8.5	9.5	11.5	10.0
9.2	12.6	8.2	9.8	15.2	6.0	11.2	13.1	6.7	7.2	11.8	11.0	5.1	11.1	14.8	1.9	10.0	18.1	2.8	9.3	18.9
8.8	15.8	5.4	10.6	14.3	6.1	13.4	11.9	5.7	13.2	10.5	6.3	8.4	10.9	6.7	9.8	8.8	11.5	8.8	9.3	12.9
6.2	16.3	7.5	9.9	16.4	4.7	9.8	15.7	5.5	8.3	14.5	7.2	6.8	13.2	11.0	5.4	11.7	12.9	5.2	12.6	13.2
9.7	13.7	6.6	9.0	14.3	7.7	8.6	15.1	7.3	11.9	10.5	7.6	13.3	10.2	7.5	11.0	10.2	8.8	9.9	11.5	9.6
7.5	14.3	8.2	7.8	16.4	6.8	8.2	16.0	6.8	11.0	11.3	7.7	12.6	9.6	8.8	11.0	9.8	9.2	9.0	10.0	12.0
9.0	13.7	7.3	9.3	16.3	5.4	11.3	14.7	5.0	10.0	14.0	6.0	7.3	13.3	10.4	4.3	16.3	9.4	8.3	17.3	5.4
6.4	10.0	13.6	6.1	11.0	13.9	7.5	12.5	11.0	6.5	10.2	13.3	6.5	9.1	15.4	4.7	8.0	17.3	5.4	8.9	16.7
6.3	17.5	6.2	8.5	15.9	6.6	11.1	14.9	5.0	12.2	11.5	6.3	12.5	11.2	7.3	8.1	11.0	10.9	5.8	11.2	14.0
7.9	13.4	8.7	8.0	15.4	7.6	10.7	12.5	7.8	10.2	10.5	9.3	10.6	12.3	8.1	9.9	11.4	8.7	8.7	11.8	10.5
9.8	13.7	6.5	8.8	15.2	7.0	10.4	12.8	7.8	10.7	10.6	8.7	10.9	12.6	7.5	10.1	10.9	9.0	9.4	12.7	8.9
8.0	16.0	6.0	7.8	17.0	6.2	7.8	18.4	4.8	10.4	12.9	6.7	12.5	12.0	6.5	9.5	10.2	10.3	7.4	12.0	11.6
7.3	15.3	7.4	7.5	15.5	8.0	9.8	12.4	8.8	8.8	12.1	9.1	10.2	12.8	8.0	8.4	11.5	10.1	6.2	12.8	12.0
9.5	12.9	7.6	8.5	14.5	8.0	9.1	13.5	8.4	10.6	10.4	9.0	13.7	9.6	7.7	11.2	9.8	9.0	10.1	11.8	9.1
8.6	17.4	4.0	10.4	16.1	4.5	12.8	14.9	3.3	12.9	13.1	4.0	12.0	13.4	5.6	10.2	15.7	4.1	10.0	14.6	6.4
6.2	10.8	13.0	11.0	12.6	7.4	10.1	14.8	6.6	6.5	11.8	11.7	2.8	12.1	16.1	2.8	9.6	18.1	1.9	6.7	22.4
8.2	13.0	8.8	10.6	14.4	6.0	11.5	13.2	6.3	13.2	10.1	6.7	12.9	10.5	7.6	10.8	10.9	8.3	9.2	12.4	9.4
8.0	13.1	8.9	9.3	14.5	7.2	9.6	13.7	7.7	7.2	11.7	11.1	5.5	10.0	15.5	1.6	6.7	21.7	0.6	5.4	25.0
8.5	19.0	2.5	8.0	19.5	3.5	9.0	18.5	3.5	12.0	14.0	4.0	6.5	18.0	6.5	8.0	12.5	9.5	9.0	13.0	9.0
12.0	13.0	5.0	10.5	14.0	6.5	9.8	15.0	6.2	13.8	10.5	5.7	13.0	10.5	7.5	9.0	11.2	9.8	9.0	11.6	10.4
8.2	14.0	7.8	9.7	13.4	7.9	10.8	9.8	10.4	10.7	10.8	8.5	11.2	11.7	8.1	9.0	11.0	10.0	6.1	12.8	12.1
11.0	15.8	3.2	6.7	17.4	6.9	6.7	18.1	6.2	13.3	13.0	3.7	15.0	11.4	4.6	14.1	10.0	5.9	12.8	14.0	4.7
7.0	16.4	6.6	8.3	16.5	6.2	9.8	15.2	6.0	8.5	13.9	7.6	7.7	13.9	9.4	4.8	12.3	12.9	2.2	12.5	16.3
7.8	14.1	8.1	8.9	15.8	6.3	9.6	14.6	6.8	8.1	14.5	7.4	5.3	13.3	12.4	3.6	11.7	14.7	1.8	10.1	19.1
7.8	13.8	8.4	8.6	14.2	8.2	11.4	12.2	7.4	10.2	11.1	8.7	8.9	11.5	10.6	9.1	10.6	10.3	9.0	12.7	9.3
7.2	9.8	13.0	15.3	7.4	8.3	14.5	9.2	7.3	12.4	9.5	8.1	7.1	9.9	14.0	4.7	8.8	16.5	3.9	7.8	19.3
25.3	4.0	0.7	15.3	11.9	3.8	13.0	12.8	5.2	25.3	4.7	1.0	23.9	6.1	1.0	22.6	6.4	1.0	19.8	8.9	2.3
9.5	17.5	3.0	10.0	16.5	4.5	13.5	13.5	4.0	6.0	14.5	9.5	9.0	13.0	9.0	7.0	13.5	9.5	5.0	14.5	11.5
25.0	4.2	0.8	27.3	3.5	0.2	28.3	2.6	0.1	25.4	3.6	1.0	21.0	7.1	2.9	18.9	5.9	5.2	12.5	10.2	8.3
14.2	11.0	4.8	13.7	12.3	5.0	11.6	12.8	6.6	14.7	12.2	3.1	13.2	11.5	6.3	11.8	8.2	10.5	9.7	10.0	11.3
7.6	12.6	9.8	9.2	14.7	7.1	10.4	13.7	6.9	8.8	12.3	8.9	6.5	10.9	13.6	2.9	9.3	17.8	0.9	6.8	23.3
12.3	9.7	8.0	18.8	9.0	3.2	10.7	8.8	2.5	17.0	8.0	5.0	6.7	13.2	11.1	2.5	13.0	14.5	2.0	10.7	18.3
25.8	3.7	0.5	29.7	1.1	0.2	29.6	1.4	0.0	25.7	3.7	0.6	23.0	5.7	2.3	19.5	6.4	4.1	13.8	8.0	9.7
8.0	14.4	7.6	11.4	12.9	6.7	14.1	13.2	3.7	13.9	10.9	5.2	12.8	11.8	6.4	7.7	12.2	10.1	7.2	11.2	12.6
3.1	10.4	16.5	3.3	7.5	20.2	1.7	6.0	23.3	2.1	7.7	20.2	2.0	8.2	20.8	6.7	8.7	14.6	9.1	9.9	12.0
8.2	15.2	6.6	10.6	15.8	4.6	10.5	14.8	5.7	9.1	13.8	7.1	10.4	12.2	8.4	6.5	13.7	9.8	8.8	12.8	9.4
10.0	16.0	4.0	10.7	16.3	4.0	13.0	13.7	3.3	11.0	13.3	5.7	6.8	10.0	14.2	5.5	15.8	8.7	9.2	16.8	5.0
15.4	11.4	3.2	15.8	12.3	2.9	16.0	12.1	2.9	18.0	9.5	2.5	12.5	11.7	6.8	10.0	10.9	9.1	8.3	10.2	12.5
6.7	15.2	8.1	8.2	16.1	6.7	9.4	16.9	4.7	11.7	13.9	4.4	12.8	12.6	5.6	13.5	10.0	6.5	13.2	11.2	6.6
9.0	13.2	7.8	11.2	14.0	5.8	11.0	13.7	6.3	10.7	12.7	6.6	8.7	12.0	10.3	4.3	12.1	13.6	2.6	9.6	18.8
8.3	14.2	7.5	8.7	15.1	7.2	10.6	12.5	7.9	9.5	11.9	8.6	10.5	12.8	7.7	9.2	11.3	9.5	7.2	13.6	10.2
12.6	11.2	6.2	7.7	15.7	7.6	9.7	14.4	6.9	12.4	13.1	4.5	15.4	11.4	4.2	15.0	9.4	5.6	13.1	9.6	8.3
7.2	15.7	7.1	9.2	15.9	5.9	7.3	15.2	8.5	8.4	11.8	9.8	11.7	11.9	7.4	9.9	11.2	8.9	10.5	10.8	9.7
9.2	14.5	6.3	15.0	14.0	2.0	17.7	10.5	2.8	14.8	11.5	3.7	7.2	14.3	9.5	8.8	14.0	7.2	8.0	14.8	8.2
9.2	16.1	4.7	11.2	15.2	4.6	13.1	14.9	3.0	14.6	9.6	5.8	14.3	11.1	5.6	10.8	9.8	9.4	10.0	9.4	11.6
14.3	13.0	2.7	11.1	12.0	7.9	10.2	12.3	2.5	14.9	10.3	4.8	13.8	11.5	5.7	11.2	11.3	7.5	10.3	11.3	9.4
7.2	6.6	16.2	3.0	10.3	17.7	8.2	9.8	13.0	8.5	7.0	14.5	8.0	9.2	13.8	3.3	7.2	19.5	5.0	10.0	16.0
10.5	13.3	6.2	9.4	14.2	7.4	8.4	13.2	9.4	10.2	10.2	9.6	11.1	10.9	9.0	9.5	11.3	9.2	9.9	11.8	9.3
10.0	12.3	7.7	16.0	11.0	4.0	20.0	9.0	2.0	16.3	9.4	4.3	5.3	12.3	13.4	5.3	11.0	13.7	5.7	11.0	14.3
6.8	15.7	7.5	14.8	12.6	3.6	12.8	15.4	2.8	14.8	11.0	4.2	10.6	12.2	8.2	8.8	12.8	8.4	6.2	12.6	12.2
16.0	11.4	2.6	13.6	12.8	3.6	17.1	11.6	2.3	17.3	8.9	3.8	18.4	8.1	4.5	18.6	5.4	6.0	18.0	7.4	5.6
20.5	8.3	1.2	9.5	16.8	4.7	10.5	16.8	3.7	20.0	7.5	2.5	21.5	6.5	3.0	19.8	8.5	1.7	17.2	9.5	4.3
7.3	14.8	7.9	9.8	14.8	6.4	11.8	12.5	6.7	10.4	11.8	7.8	8.5	11.5	11.0	4.8	11.4	13.8	3.0	10.9	17.1
0.7	4.0	25.3	1.3	7.3	22.4	2.7	6.0	22.3	1.0	3.2	25.8	1.2	5.0	24.8	0.8	5.5	23.7	1.0	5.0	25.0
9.9	15.3	4.8	10.0	14.9	6.1	10.2	16.1	4.7	12.0	11.2	6.8	14.3	10.1	6.6	9.5	11.1	9.4	8.8	10.2	12.0
7.8	15.7	6.5	9.1	14.2	7.7	9.3	13.1	8.6	10.8	10.5	8.7	11.5	11.1	8.4	8.4	12.6	9.0	7.9	12.9	10.2
12.5	14.0	3.5	9.5	15.0	6.5	13.0	13.0	5.0	16.0	10.5	3.5	15.2	10.2	5.6	15.5	11.8	2.7	9.5	16.5	5.0
9.5	12.5	8.0	9.5	14.1	7.4	8.8	12.8	9.4	9.2	10.9	9.9	13.7	9.5	7.8	11.5	8.8	9.7	10.7	11.5	8.8
9.6	13.9	6.5	11.0	14.8	5.2	12.9	12.8	5.3	12.6	11.9	5.5	11.6	11.6	7.8	10.4	12.6	7.0	9.9	12.6	8.5
27.5	2.4	0.1	22.5	7.8	0.7	21.8	7.7	1.5	26.2	3.5	0.3	24.1	6.1	0.8	22.8	5.8	1.4	22.4	6.9	1.7

APPENDIX 66.

Directions from which the prevailing winds have been observed to blow at stations on the Central Pacific and Southern Pacific Railroads, and connecting branches, during each month of the year ending June 30, 1884.

[Copied from the records on file at the office of the chief engineer, Central Pacific Railroad, by the observer at San Francisco, Cal.]

Stations.	1883.						1884.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Alta, Cal	(1)	(1)	SE.	S.	S.	S.	S.	SE.	S.	S.	NE.	S.
Anaheim, Cal	SW.	SW.	SW.	SW.	SW.	W.	N.	W.	SE.	SW.	SW.	SW.
Antioch, Cal	NW.	W.	W.	W.	W.	SE.	SE.	NW.	W.	W.	W.	W.
Auburn, Cal	SW.	S.	S.	SE.	S.	SE.	SE.	SE.	SE.	SE.	SE.	SE.
Battle Mountain, Nev	SW.	SW.	SW.	W.	SW.	(1)	SW.	SW.	NE.	NE.	SW.	SW.
Benson, Ariz	W.	W.	W.	W.	W.	W.	W.	S.	W.	W.	SW.	(1)
Beowawe, Nev	NW.	NW.	S.	W.	W.	S.	S.	S.	S.	W.	S.	W.
Bishop's Creek, Nev	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	N.	N.	S.	S.
Blue Creek, Utah	NW.	SW.	N.	N.	E.	E.	E.	E.	SW.	S.	S.	NE.
Boca, Cal	W.	W.	(1)	W.	W.	N.	N.	SW.	N.	SW.	SW.	SW.
Borden, Cal	NW.	NW.	NW.	NW.	NW.	NW.	SE.	SE.	SE.	{NE. {SE.	NW.	NW.
Brentwood, Cal	W.	W.	W.	W.	W.	S.	NW.	W.	W.	W.	W.	W.
Brighton, Cal	SW.	S.	SW.	N.	N.	SE.	N.	N.	SE.	SE.	S.	S.
Brown's, Nev	SW.	W.	W.	W.	W.	SW.	SW.	SW.	SW.	SW.	SW.	SW.
Byron, Cal	W.	W.	NW.	W.	W.	W.	NW.	W.	SE.	W.	NW.	W.
Caliente, Cal	E.	W.	W.	N.	E.	(1)	W.	SE.	W.	W.	W.	W.
Calistoga, Cal	W.	NW.	SE.	W.	S.	E.	SE.	W.	W.	W.	W.	W.
Camp Wright, Cal	(1)	(1)	(1)	NW.	(1)	SE.	(1)	(1)	(1)	(1)	(1)	(1)
Carlin, Nev	W.	W.	W.	W.	W.	W.	N.	W.	W.	W.	W.	W.
Casa Grande, Ariz	W.	W.	(1)	W.	E.	E.	E.	W.	W.	SW.	N.	N.
Chico, Cal	S.	S.	S.	S.	S.	S.	S.	N.	S.	S.	S.	S.
Chualar, Cal	N.	N.	N.	N.	N.	N.	S.	S.	S.	N.	N.	N.
Cisco, Cal	(1)	(1)	(2)	SW.	N.	N.	SW.	SW.	SW.	SW.	NE.	SW.
Colfax, Cal	N.	W.	S.	N.	N.	NE.	N.	S.	SW.	SW.	SW.	SW.
Colton, Cal	SW.	W.	SW.	SW.	NE.	(2)	N.	SE.	W.	W.	W.	SW.
Corinne, Utah	N.	S.	N.	N.	N.	N.	N.	N.	S.	N.	S.	S.
Daggett, Ariz	(2)	W.	W.	W.	W.	W.	W.	W.	W.	W.	W.	W.
Davis, Cal	S.	SW.	S.	W.	N.	N.	N.	N.	S.	S.	W.	S.
Delano, Cal	NW.	N.	N.	W.	W.	S.	S.	S.	SW.	SW.	(2)	S.
Deming, N. Mex	SW.	SE.	SW.	SW.	SW.	SW.	E.	W.	W.	W.	W.	W.
Dunnigan, Cal	SE.	N.	S.	N.	N.	N.	S.	N.	S.	N.	N.	S.
Elko, Nev	N.	N.	W.	NW.	NW.	N.	N.	N.	W.	N.	N.	W.
El Paso, Tex	S.	N.	W.	W.	N.	N.	N.	W.	S.	S.	S.	(1)
Emigrant Gap, Cal	E.	E.	E.	E.	E.	E.	E.	E.	S.	S.	E.	E.
Farmington, Cal	NW.	NW.	NW.	NW.	NW.	SE.	SE.	SE.	SE.	SE.	NW.	NW.
Fenner, Cal	(1)	E.	E.	E.	E.	W.	SW.	W.	E.	E.	W.	W.
Fresno, Cal	NW.	NW.	NW.	NW.	N.	(1)	SE.	SE.	SE.	N.	N.	NW.
Galt, Cal	W.	NW.	NW.	W.	N.	E.	SE.	SE.	SE.	SE.	NW.	W.
Gilroy, Cal	W.	SW.	N.	W.	W.	N.	N.	W.	SW.	W.	W.	W.
Golconda, Nev	W.	NW.	W.	W.	E.	W.	E.	SW.	W.	E.	NW.	(1)
Goshen, Cal	NW.	NW.	NW.	NW.	NW.	(1)	SE.	SE.	SW.	SE.	NW.	NW.
Halleck, Nev	(1)	SW.	W.	SW.	SW.	W.	S.	SW.	SW.	SW.	SW.	SW.
Hawley, Nev	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	N.	(1)	(1)	......
Hawthorn, Nev	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	NW.	W.	NW.	NW.
Hollister, Cal	W.	W.	W.	SE.	NW.	SW.	NW.	NW.	NW.	NW.	NW.	NW.
Hot Springs, Nev	NE.	SE.	NE.	NW.	NE.	NE.	NW.	(1)	N.	N.	N.	NE.
Humboldt, Nev	N.	S.	S.	N.	S.	S.	NE.	SW.	N.	N.	SW.	N.
Indio, Cal	NW.	(1)	NW.	NW.	NW.	(1)	N.	SW.	(1)	NW.	NW.	NW.
Ione, Cal	SW.	(1)	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	(2)	SW.
Keeler, Cal	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	S.	S.	N.
Keene, Cal	NW.	NW.	NW.	NW.	SE.	SE.	SE.	SE.	NW.	NW.	NW.	NW.
Kelton, Utah	N.	S.	E.	S.	N.	S.	N.	S.	S.	N.	W.	N.
Kingsburg, Cal	(1)	(1)	(1)	(1)	(1)	(1)	SE.	SE.	SE.	N.	N.	N.
Knight's Landing, Cal	S.	(1)	S.	N.	N.	S.	N.	N.	N.	S.	S.	S.
Lathrop, Cal	W.	W.	NW.	NW.	W.	SW.	SE.	SE.	SE.	SE.	W.	W.
Lemoore, Cal	NW.	(1)	NW.	NW.	NW.	NW.	NW.	NW.	S.	NW.	NW.	NW.
Livermore, Cal	SW.	SW.	SW.	SW.	NE.	SW.	E.	SW.	SW.	SW.	W.	W.

[1] No record.

[2] Record incomplete.

Directions from which the prevailing winds have been observed to blow at stations on the Central Pacific and Southern Pacific Railroads, &c.—Continued.

Stations.	1883.						1884.					
	July.	August.	September.	October.	November.	December.	January.	February.	March.	April.	May.	June.
Loma Prieta, Cal	(1)	(1)	(1)	(1)	(1)	(1)	N.	NE.	NE.	E.	E.	(1)
Lordsburg, N. Mex	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SW.	SW.	SE.
Los Angeles, Cal	SW.	SW.	SW.	SW.	SW.	SW.	NW.	SW.	SE.	SW.	SW.	SW.
Mammoth Tank, Cal	E.	(1)	SW.	W.	W.	N.	NE.	NE.	SW.	SW.	SW.	NE.
Maricopa, Ariz	W.	(1)	W.	(1)	E.	W.	(1)	W.	W.	W.	W.	E.
Martinez, Cal	SW.	SW.	SW.	SW.	SW.	SW.	SW.	W.	SW.	SW.	SW.	SW.
Marysville, Cal	S.	(1)	S.	S.	S.	S.	S	S.	S.	S.	S&N.	S.
Menlo Park, Cal	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.
Merced, Cal	N.	N.	N.	N.	N.	N.	N.	N.	S.	N.	N.	N.
Modesto, Cal	W.	W.	N.	S.	NW.	S.	S.	S.	S.	S.	NW.	NW.
Mojave, Cal	NE.	SW.	SW.	SW.	W.	NW.	(1)	NW.	SW.	SE.	SE.	SE.
Monterey, Cal	SW.	NW.	NW.	NW.	NW.	NW.	SE.	NW.	S.	NW.	NW.	NW.
Napa, Cal	W.	W.	W.	W.	SW.	W.	NW.	SE.	W.	W.	W.	SW.
Needles, Ariz	(1)	(1)	E.	S.	SW.	NW.	NW.	S.	NW.	NW.	NW.	SE.
Newhall, Cal	SE.	SE.	SE.	SE.	SE.	SE.	NE.	SE.	SE.	SE.	SE.	SE.
Niles, Cal	NW.	W.	W.	SW.	W.	NE.	SE.	NE.	SW.	SE.	W.	SW.
Oakland, Cal	W.	W.	W.	W.	W.	W.	S.	W.	W.	W.	W.	W.
Ogden, Utah	E.	S.	E.	S.	S.	S.	S.	S.	S.	E.	S.	S.
Orland, Cal	S.	S.	S.	N.	N.	S.	N.	N.	N.	S.	S.	S.
Otego, Nev	SW.	SW.	W.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.
Pajaro, Cal	W.	W.	(1)	SW.	E.	(1)	(1)	E.	SW.	(1)	W.	S.
Palisade, Nev	W.	W.	W.	NW.	N.	(1)	W.	W.	N.	N.	N.	W.
Pantana, Ariz	W.	E.	E.	NW.	E.	E.	E.	E.	E&W	E.	E.	(1)
Petaluma, Cal	W.	NW.	W.	W.	W.	SE.	SE.	W.	W.	W.	W.	W.
Pleasonton, Cal	S.	S.	S.	S.	S.	(2)	S.	S.	S.	S.	SW.	S.
Promontory, Utah	SW.	SW.	NE.	NE.	SW.	SW.	NE.	NE.	NE.	NE.	NE.	SW.
Ravenna, Cal	SW.	SW.	SW.	SW.	SW.	NE.	NE.	NE.	SW.	SW.	SW.	SW.
Red Bluff, Cal	S	S.	N.	N.	N.	S.	N.	N.	N.	S.	S.	S.
Redding, Cal	NW.	NW.	NW.	NW.	NW.	(1)	(1)	(1)	(1)	SW.	SW.	SW.
Reno, Nev	W.	W.	W.	NW.	W.	W.	E.	SW.	SW.	SW.	N.	SW.
Rocklin, Cal	S.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SE.	SE.
Sacramento, Cal	S.	S.	S.	S.	N.	N.	N.	N.	S.	S.	S.	S.
Salinas City, Cal	W.	W.	W.	W.	W.	W.	S.	S.	S.	S.	W.	S.
San Fernando, Cal	S	S.	S.	S.	N.	N.	S.	S.	S.	S.	S.	(1)
San José, Cal	NW.	NW.	NW.	NW.	NW.	NW.	S.	S	NW.	NW.	NW.	NW.
San Mateo, Cal	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.
San Simon, Ariz	W.	E.	E.	E.	E.	E.	E.	E.	W.	W.	W.	W.
Santa Cruz, Cal	SW.	SE.	SE.	SW.	NE.	NE.	NE.	NE.	NE.	N.	S.	S.
Soledad, Cal	NW.	NW.	NW.	NW.	NW.	NW.	S.	S.	NW.	NW.	NW.	NW.
Soquel, Cal	(1)	S.	(1)	S.	N.	N.	N.	N.	N.	N&S.	N.	N.
Soscol, Cal	(1)	(1)	S.	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
South Vallejo, Cal	SW.	SW.	SW.	SW.	E.	E.	SE.	SW.	SE.	W.	SW.	SW.
Spadra, Cal	W.	W.	W.	W.	W.	W.	N.	E.	S.	W.	W.	N.
Stockton, Cal	W.	W.	NW.	NW.	NW.	(1)	SE.	SE.	S.	SE.	W.	NW.
Suisun, Cal	SW.	SE.	SW.	W.	SW.	SW.	NE.	NE.	SW.	SW.	SW.	SW.
Summit, Cal	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.
Sumner, Cal	N.	N.	N.	N	N.	N.	N.	N.	N.	N.	N.	N.
Tecoma, Nev	SW.	W.	NE.	NW.	W.	SW.	W.	W.	W.	SW.	W.	W.
Tehama, Cal	S.	S.	N.	N.	N.	N.	N.	N.	N.	S.	(1)	S.
Tehichipa, Cal	NW.	NW.	NW.	NW.	SE.	SE.	SE.	SE.	NW.	NW.	NW.	NW.
Tennant, Cal	W.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.	NW.
Terrace, Utah	NW.	(1)	NW.	NW.	NW.	NW.	NW.	NW.	NW.	W.	W.	W.
Texas Hill, Ariz	SW.	SW.	SE.	SW.	(2)	NW.	N.	S.	W.	W.	W.	S. W.
Toano, Nev	S.	S.	N.	S.	W.	W.	S.	S.	SW.	S.	S.	W.
Tracy, Cal	W.	W.	W.	W.	W.	S.	S.	W.	S.	S.	W.	W.
Truckee, Cal	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.	SW.
Tucson, Ariz	SW.	S.	W.	S.	W.	W.	SW.	W.	E.	SE.	S.	SE.
Tulare, Cal	W.	W.	W.	NW.	NW.	NW.	S.	N.	SW.	S.	NW.	NW.
Turlock, Cal	NW.	NW.	NW.	NW.	NW.	NW.	SW.	S.	S.	S.	N.	N.
Wadsworth, Nev	NW.	W.	W.	W	N	S.	SE.	N.	W.	W.	N.	W.
Wells, Nev	W.	SE.	SE.	SW.	SW.	E.	SW.	W.	SW.	S.	SW.	SW.
White Water, Cal	W.	W.	W.	W.	W.	E.	E.	E.	W.	W.	W.	W.
Willcox, Ariz	E.	E	E.	W.	N.	N.	N.	W.	W.	W.	W.	W.
Williams, Cal	S.	(1)	S.	N.	N.	SW.	N.	N.	S.	S.	S.	S.
Willows, Cal	N.	N.	S.	SE.	S.	S.	S.	S.	S.	S.	S.	S.
Winnemucca, Nev	SW.	SW.	SW.	SW.	SW.	N.	NE.	SE.	SW.	SW.	SW.	SW.
Woodland, Cal	S.	S.	N.	N.	N.	N.	N.	N.	N.	N.	S.	S.
Yuma, Ariz	SE.	SE.	NE.	NE.	N.	NE.	NE.	NE.	W.	W.	NW.	(1)

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[1] No record.

[2] Record incomplete.

APPENDIX 67.

Table showing the date of the first killing frost at stations of the Signal Service, United States Army, east of the Rocky Mountains during the fall and winter of 1883–'84.

Stations.	Latitude.		Longitude.		Date.	
	°	′	°	′		
Key West, Fla.	24	34	81	49	(1)	
BrownsvilleTex,	25	53	97	26	Jan.	3
Rio Grande City, Tex	26	23	98	48	Jan.	2
Indianola, Tex	28	32	96	31	Jan.	9
Sanford, Fla	28	48	81	23	Jan.	10
Cedar Keys, Fla	29	8	83	2	[3] Dec.	16
Galveston, Tex	29	18	94	47	Jan.	2
New Orleans, La	29	58	90	4	Jan.	2
Jacksonville, Fla	30	20	81	39	Dec.	16
Pensacola, Fla	30	25	87	13	Dec.	16
Fort Davis, Tex	30	38	103	56	Dec.	9
Mobile, Ala	30	41	88	2	Dec.	16
Fort Stockton, Tex	30	53	102	53	Dec.	9
Fort Concho, Tex	31	25	100	24	Dec.	8
Palestine, Tex	31	45	95	40	Nov.	13
El Paso, Tex	31	47	106	30	Nov.	13
Savannah, Ga	32	5	81	5	Dec.	18
Vicksburg, Miss	32	22	90	53	Nov.	16
Montgomery, Ala	32	23	86	18	Nov.	3
Shreveport, La	32	30	93	40	Nov.	15
Charleston, S. C	32	47	79	56	Nov.	17
Augusta, Ga	33	28	81	54	[3] Nov.	17
Atlanta, Ga	33	45	84	23	Nov.	13
Smithville, N. C	33	55	78	1	Dec.	22
Wilmington, N. C	34	14	77	57	Nov.	13
Fort Sill, Ind. T	34	40	98	23	(2)	
Fort Macon, N. C	34	42	76	40	Nov.	13
Little Rock, Ark	34	45	92	6	Nov.	2
Chattanooga, Tenn	35	4	85	15	Nov.	2
Memphis, Tenn	35	9	90	3	Nov.	2
Charlotte, N. C	35	13	80	51	Nov.	2
Hatteras, N. C	35	15	75	40	Dec.	16
Fort Smith, Ark	35	22	94	24	Nov.	1
Fort Elliott, Tex	35	30	100	21	Oct.	25
Knoxville, Tenn	35	56	83	58	Nov.	2
Kitty Hawk, N. C	36	0	75	42	Nov.	13
Nashville, Tenn	36	10	86	47	Nov.	2
Norfolk, Va	36	51	76	17	Nov.	30
Cape Henry, Va	36	56	76	0	Dec.	15
Cairo. Ill	37	0	89	10	Nov.	2
Lynchburg, Va	37	25	79	9	Nov.	15
Dodge City, Kans	37	45	100	0	Oct.	14
Chincoteague, Va	37	55	75	23	Nov.	17
West Las Animas, Colo	38	4	103	12	Oct.	25
Louisville, Ky	38	15	85	45	Nov.	2
Saint Louis, Mo	38	38	90	12	Nov.	12
Delaware Breakwater, Del	38	48	75	10	[3] Nov.	15
Pike's Peak, Colo	38	50	105	2	Aug.	5
Washington, City	38	54	77	2	Nov.	15
Cape May, N. J	38	56	74	58	Nov.	13
Cincinnati, Ohio	39	6	84	30	Nov.	2
Baltimore, Md	39	18	76	37	Nov.	13
Leavenworth, Kans	39	19	94	57	Oct.	26
Atlantic City, N. J	39	22	74	25	Nov.	8
Denver, Colo	39	45	105	0	Sept.	21
Barnegat City, N. J	39	46	74	6	Nov.	18
Indianapolis, Ind	39	46	86	10	Dec.	11
Springfield, Ill	39	48	89	39	Oct.	16
Philadelphia, Pa	39	57	75	9	Nov.	18
Columbus, Ohio	39	58	83	0	Nov.	3
Keokuk, Iowa	40	22	91	26	Oct.	15
Sandy Hook, N. J	40	28	74	0	Nov.	3
Pittsburg, Pa	40	32	80	2	Nov.	15
New York City	40	43	74	0	Nov.	15
Cheyenne, Wyo	41	8	104	48	Sept.	21
North Platte, Nebr	41	8	100	45	Oct.	9
Block Island, R. I	41	10	71	36	Nov.	19

[1] None observed. [2] No reliable record.

[3] Date when temperature first fell to freezing point; no killing frost reported.

Table showing the date of the first killing frost, &c.—Continued.

Stations.	Latitude.		Longitude.		Date.	
	°	′	°	′		
Omaha, Nebr	41	16	95	56	[1] Oct.	20
New Haven, Conn	41	18	72	56	Oct.	5
New London, Conn	41	21	72	5	Oct.	5
Sandusky, Ohio	41	25	82	40	Oct.	27
Cleveland, Ohio	41	30	81	42	Oct.	17
Davenport, Iowa	41	30	90	38	Oct.	3
Des Moines, Iowa	41	35	93	37	Oct.	20
Toledo, Ohio	41	40	83	34	Sept.	9
Chicago, Ill	41	52	87	38	Oct.	1
Provincetown, Mass	42	3	70	11	Oct.	17
Erie, Pa	42	7	80	5	Oct.	5
Detroit, Mich	42	20	83	3	Oct.	1
Boston, Mass	42	21	71	4	Oct.	3
Dubuque, Iowa	42	30	90	44	Sept.	26
Albany, N. Y	42	39	73	45	Oct.	16
Buffalo, N. Y	42	53	78	53	Oct.	1
Yankton, Dak	42	54	97	28	Oct.	2
Port Huron, Mich	43	0	82	26	Sept.	26
Milwaukee, Wis	43	2	87	54	Oct.	1
Grand Haven, Mich	43	5	86	13	Sept.	10
Rochester, N. Y	43	8	77	42	[2]	
Oswego, N. Y	43	29	76	35	Oct.	1
Portland, Me	43	39	70	15	Nov.	1
La Crosse, Wis	43	49	91	15	Oct.	1
Mount Washington, N. H	44	16	71	18	Sept.	3
Huron, Dak	44	21	98	9	Sept.	8
Deadwood, Dak	44	23	103	43	Sept.	21
Fort Bennett, Dak	44	43	100	39	Oct.	14
Eastport, Me	44	54	66	59	Oct.	2
Saint Paul, Minn	44	58	93	3	Sept.	30
Alpena, Mich	45	5	83	30	Sept.	10
Fort Custer, Mont	45	42	107	34	Oct.	11
Mackinaw City, Mich	45	47	84	39	Sept.	29
Escanaba, Mich	45	48	87	5	Sept.	28
Helena, Mont	46	34	112	4	Sept.	20
Marquette, Mich	46	34	87	24	Sept.	28
Bismarck, Dak	46	47	100	38	Sept.	8
Duluth, Minn	46	48	92	6	Oct.	21
Moorhead, Minn	46	52	96	44	Sept.	8
Fort Shaw, Mont	47	31	111	48	Aug.	22
Fort Benton, Mont	47	50	110	40	Sept.	20
Fort Buford, Dak	48	0	103	56	Aug.	22
Poplar River, Mont	48	3	105	10	Sept.	22
Fort Assinaboine, Mont	48	33	109	43	Sept.	20
Saint Vincent, Minn	48	56	97	14	Sept.	8

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[1] Date when temperature first fell to freezing point; no killing frost reported.

[2] No reliable record.

APPENDIX 68.

Table showing the first frost at stations of the Signal Service, United States Army, east of the Rocky Mountains, for each winter from the commencement of observations to the winter of 1883–'84.

Stations.	Latitude.	Longitude.	WINTER OF—												
			1871–'72.	1872–'73.	1873–'74.	1874–'75.	1875–'76.	1876–'77.	1877–'78.	1878–'79.	1879–'80.	1880–'81.	1881–'82.	1882–'83.	1883–'84.
	° ′	° ′													
Key West, Fla	24 34	81 49	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Brownsville, Tex	25 53	97 26	....	....	....	....	(1)	(1)	(1)	Nov. 27	Nov. 19	Dec. 20	(1)	Nov. 20	Jan. 3
Rio Grande City, Tex	26 23	98 48	....	....	....	....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 2
Indianola, Tex	28 32	96 31	(1)	(1)	Jan. 7	Jan. 9	(1)	(1)	(1)	Nov. 27	Dec. 12	Nov. 15	Nov. 4	Nov. 30	Dec. 16
Sanford, Fla	28 48	81 23	....	....	....	....	....	....	....	....	....	....	....	....	Dec. 1
Cedar Keys, Fla	29 8	83 2	....	....	....	....	....	....	....	....	....	Oct. 24	Nov. 25	Dec. 1	Jan. 9
Galveston, Tex	29 18	94 47	Jan. 24	Dec. 24	Jan. 5	Jan. 9	(1)	Dec. 2	Nov. 30	Jan. 4	(1)	Dec. 29	(1)	Dec. 17	Dec. 16
New Orleans, La	29 58	90 4	Dec. 1	Nov. 30	Nov. 20	Nov. 26	Dec. 18	Nov. 21	Nov. 11	Nov. 1	Nov. 20	Nov. 16	Nov. 25	Nov. 30	Dec. 16
Jacksonville, Fla	30 20	81 39	Dec. 6	Nov. 16	Nov. 13	Dec. 8	Oct. 28	Nov. 20	Nov. 12	Nov. 29	Nov. 20	Nov. 16	Nov. 4	Nov. 15	Nov. 3
Pensacola, Fla	30 25	87 13	....	....	....	....	....	....	....	....	Oct. 29	Nov. 7	Nov. 4	Nov. 14	Nov. 29
Fort Davis, Tex	30 38	103 56	....	....	....	....	....	....	....	(2)	Oct. 27	Oct. 4	Nov. 2	Oct. 19	Sept. 22
Mobile, Ala	30 41	88 2	Dec. 5	Nov. 15	Oct. 26	Oct. 14	Dec. 8	Oct. 2	Nov. 11	Nov. 3	Nov. 21	Nov. 7	Nov. 25	Nov. 14	Nov. 3
Fort Stockton, Tex	30 53	102 53	....	....	....	....	....	Nov. 14	Oct. 21	Oct. 17	Nov. 16	Sept. 10	Nov. 24	Oct. 20	Jan. 5
Fort Concho, Tex	31 25	100 24	....	....	....	....	....	(2)	(2)	Oct. 5	Nov. 19	Oct. 17	Nov. 9	Oct. 20	Oct. 30
Palestine, Tex	31 45	95 40	....	....	....	Nov. 20	Oct. 20	Oct. 16	Nov. 6	Oct. 18	Nov. 19	Nov. 7	Dec. 15	Oct. 21	Oct. 25
El Paso, Tex	31 47	106 30	....	....	....	....	....	....	....	(2)	(2)	(2)	(2)	(2)	Oct. 30
Savannah, Ga	32 5	81 5	(2)	Oct. 15	Nov. 14	Oct. 15	Oct. 17	Nov. 21	Nov. 10	Oct. 20	Nov. 4	Oct. 25	Nov. 26	Nov. 15	Nov. 3
Vicksburg, Miss	32 22	90 53	Nov. 15	(2)	Oct. 7	Nov. 29	Oct. 20	Nov. 20	Nov. 7	Oct. 19	Oct. 25	Oct. 17	Nov. 4	Nov. 14	Nov. 2
Montgomery, Ala	32 23	86 18	....	Oct. 15	Oct. 28	Nov. 2	Oct. 12	Nov. 10	Nov. 4	Oct. 19	Nov. 3	Oct. 24	Nov. 4	Nov. 14	Oct. 26
Shreveport, La	32 30	93 40	Nov. 15	Nov. 18	Oct. 20	Nov. 1	Oct. 19	Oct. 1	Oct. 20	Oct. 18	Nov. 18	Oct. 17	Nov. 20	Nov. 14	Nov. 13
Charleston, S. C	32 47	79 56	Nov. 17	(2)	Oct. 8	Nov. 30	Dec. 10	Oct. 2	Nov. 11	Nov. 29	Nov. 21	Nov. 16	Nov. 26	Nov. 22	Nov. 2
Augusta, Ga	33 28	81 54	Nov. 16	(2)	Oct. 8	Oct. 14	Nov. 1	Oct. 2	Nov. 11	Oct. 19	Sept. 26	Oct. 24	Nov. 4	Nov. 15	Nov. 2
Atlanta, Ga	33 45	84 23	....	....	....	....	....	....	....	Oct. 19	Nov. 1	Oct. 24	Nov. 4	Nov. 6	Nov. 2
Smithville, N. C	33 55	78 1	....	....	....	....	....	Oct. 2	Nov. 12	Nov. 2	Nov. 4	Oct. 24	Nov. 25	Nov. 15	Nov. 2
Wilmington, N. C	34 14	77 57	Nov. 17	Nov. 16	Nov. 20	Nov. 2	Oct. 17	Nov. 26	Nov. 7	Oct. 20	Nov. 3	Nov. 16	Nov. 5	Nov. 15	Nov. 2
Fort Sill, Ind. T	34 40	98 23	....	....	....	....	....	....	(2)	Oct. 17	Nov. 2	Oct. 17	Nov. 8	Nov. 13	(2)
Fort Macon, N. C	34 42	76 40	....	....	....	....	....	....	....	Nov. 2	Nov. 3	Nov. 16	Nov. 5	Nov. 17	Nov. 2
Little Rock, Ark	34 45	92 6	....	....	....	....	....	....	....	....	Nov. 4	Oct. 16	Sept. 16	Nov. 13	Nov. 2
Chattanooga, Tenn	35 4	85 15	....	....	....	....	....	....	....	(2)	Sept. 26	Oct. 18	Nov. 4	Nov. 14	Nov. 2
Memphis, Tenn	35 9	90 3	Sept. 29	Oct. 11	Oct. 7	Oct. 13	Oct. 12	Oct. 2	Oct. 5	Oct. 29	Oct. 20	Sept. 13	Oct. 20	Oct. 21	Nov. 1
Charlotte, N. C	35 13	80 51	....	....	....	....	....	....	....	Oct. 20	Sept. 26	Oct. 1	Nov. 4	Oct. 25	Nov. 1
Hatteras, N. C	35 15	75 40	....	....	....	....	Dec. 11	Jan. 21	Nov. 30	Dec. 6	Nov. 21	(1)	Jan. 4	Nov. 23	Nov. 16
Fort Smith, Ark	35 22	94 24	....	....	....	....	....	....	....	....	....	....	....	Nov. 14	Sept. 23
Fort Elliott, Tex	35 30	100 21	....	....	....	....	....	....	....	....	....	Oct. 17	Nov. 2	Oct. 10	Oct. 14
Knoxville, Tenn	35 56	83 58	Sept. 30	Oct. 10	Oct. 6	Oct. 13	Oct. 12	Oct. 8	Oct. 12	Sept. 14	Sept. 14	Sept. 30	Oct. 26	Oct. 25	Nov. 1
Kitty Hawk, N. C	36 0	75 42	....	....	....	(2)	Nov. 12	Nov. 26	Dec. 4	Nov. 2	Feb. 7	Nov. 16	Nov. 5	Nov. 9	Nov. 3
Nashville, Tenn	36 10	86 47	Oct. 12	Oct. 11	Oct. 21	Oct. 14	Oct. 12	Oct. 7	Oct. 5	Oct. 13	Oct. 24	Oct. 18	Oct. 20	Oct. 24	Nov. 1

Norfolk, Va	36	51	76	17	(2)	(2)	(2)	Nov. 4	Oct. 17	Oct. 8	Nov. 12	Oct. 21	Oct. 25	Nov. 16	Nov. 16	Nov. 8	Nov. 4
Cape Henry, Va	36	56	76	0	....	....	....	Nov. 26	Oct. 17	Oct. 8	Nov. 29	Nov. 6	Jan. 17	Oct. 24	Nov. 2	Nov. 30	Dec. 4
Cairo, Ill	37	0	89	10	Sept. 29	Oct. 11	Oct. 7	Oct. 13	Oct. 2	Oct. 7	Oct. 5	Oct. 12	Sept. 25	Oct. 5	Oct. 20	Oct. 21	Oct. 22
Lynchburg, Va	37	25	79	9	(2)	(2)	Sept. 15	Oct. 13	Sept. 21	Oct. 1	Nov. 4	Oct. 20	Sept. 20	Sept. 16	Oct. 6	Nov. 6	Nov. 3
Dodge City, Kans	37	45	100	0	....	....	....	Oct. 29	Oct. 16	Sept. 30	Oct. 4	Sept. 20	Sept. 12	Oct. 4	Oct. 18	Oct. 18	Sept. 21
Chincoteague, Va	37	55	75	23	....	....	....	....	....	....	....	....	....	Nov. 8	Nov. 21	Nov. 16	Nov. 13
West Las Animas, Colo	38	4	103	12	....	....	....	....	....	....	....	....	....	....	....	Sept. 2	Oct. 6
Louisville, Ky	38	15	85	45	Dec. 2	Oct. 11	Oct. 24	Sept. 29	Oct. 12	Oct. 7	Oct. 6	Sept. 14	Sept. 25	Sept. 30	Nov. 4	Oct. 24	Nov. 1
Saint Louis, Mo	38	38	90	12	Nov. 2	Nov. 3	Oct. 23	Oct. 12	Oct. 12	Sept. 27	Nov. 3	Sept. 12	Nov. 20	Sept. 30	Oct. 20	Sept. 22	Nov. 12
Del. Breakwater, Del	38	48	75	10	....	....	....	....	....	....	....	....	....	Nov. 14	Nov. 25	(1)	(1)
Pike's Peak, Colo	38	50	105	2	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	Aug. 6
Washington City	38	54	77	2	(2)	Nov. 9	Oct. 22	Oct. 14	Oct. 12	Oct. 9	Oct. 23	Oct. 7	Sept. 25	Oct. 1	Oct. 6	Nov. 3	Oct. 17
Cape May, N. J	38	56	74	58	(2)	Sept. 4	Sept. 15	Nov. 4	Dec. 21	(2)	Dec. 29	Dec. 6	Oct. 26	Nov. 1	Sept. 11	Nov. 21	Nov. 13
Cincinnati, Ohio	39	6	84	30	Nov. 11	Oct. 12	Oct. 7	Oct. 13	Oct. 12	Oct. 9	Sept. 18	Oct. 12	Sept. 25	Oct. 17	Oct. 19	Oct. 20	Sept. 10
Baltimore, Md	39	18	76	37	(2)	Nov. 5	Oct. 29	Nov. 1	Oct. 14	Oct. 12	Nov. 4	Nov. 2	(2)	Oct. 19	Oct. 6	Nov. 3	Sept. 10
Leavenworth, Kans	39	19	94	57	Oct. 11	Oct. 11	Sept. 19	Oct. 9	Sept. 18	Sept. 29	Oct. 4	Sept. 12	Sept. 20	Oct. 4	Nov. 3	Oct. 17	Sept. 26
Atlantic City, N. J	39	22	74	25	....	....	....	Oct. 15	(2)	Dec. 21	Nov. 4	Nov. 4	Oct. 20	Oct. 19	Nov. 16	Nov. 15	Nov. 3
Denver, Colo	39	45	105	0	(2)	Oct. 5	Sept. 18	Oct. 25	Oct. 24	Oct. 1	Sept. 9	Sept. 10	Oct. 9	Oct. 13	Sept. 10	Oct. 8	Sept. 21
Barnegat City, N. J	39	46	74	6	....	....	....	(2)	(2)	(2)	Nov. 12	Nov. 2	Oct. 26	Oct. 19	Nov. 27	Nov. 19	Nov. 8
Indianapolis, Ind	39	46	86	10	(2)	(2)	Sept. 14	Sept. 29	Sept. 21	Sept. 27	Sept. 18	Sept. 14	Sept. 25	Oct. 17	Oct. 20	Sept. 22	Sept. 9
Springfield, Ill	39	48	89	39	....	....	....	....	....	....	....		Sept. 8	Sept. 10	Oct. 19	Sept. 22	Sept. 9
Philadelphia, Pa	39	57	75	9	(2)	Oct. 31	Nov. 2	(2)	Oct. 10	Sept. 26	Oct. 23	Oct. 7	Sept. 26	Nov. 3	Oct. 6	Nov. 6	Sept. 10
Columbus, Ohio	39	58	83	0	....	....	....	....	....	....	....	Sept. 22	Sept. 21	Sept. 30	Oct. 11	Oct. 20	Sept. 9
Keokuk, Iowa	40	22	91	26	(2)	(2)	Sept. 30	(2)	Sept. 11	Oct. 1	Oct. 11	Oct. 19	Sept. 14	Sept. 9	Oct. 19	Sept. 23	Sept. 9
Sandy Hook, N. J	40	28	74	0	....	....	....	(2)	(2)	Nov. 9	Nov. 21	Nov. 15	(2)	Oct. 19	Nov. 21	Nov. 19	Oct. 17
Pittsburg, Pa	40	32	80	2	Sept. 21	(2)	(2)	Oct. 15	(2)	Sept. 27	Oct. 6	Sept. 22	Sept. 25	Oct. 13	Oct. 5	Oct. 20	Sept. 10
New York City	40	43	74	0	Oct. 30	Nov. 5	(2)	Sept. 24	Nov. 2	(2)	Oct. 23	(2)	(2)	Nov. 3	Oct. 6	Oct. 25	Nov. 15
Cheyenne, Wyo	41	8	104	48	Oct. 9	Sept. 24	Sept. 18	Oct. 22	Sept. 3	Sept. 15	Sept. 17	Sept. 10	Oct. 15	Sept. 12	Sept. 10	Sept. 1	Sept. 21
North Platte, Nebr	41	8	100	45	....	....	....	Oct. 31	Sept. 10	Sept. 14	Oct. 1	Sept. 10	Sept. 6	Sept. 13	Sept. 16	Oct. 8	Sept. 24
Block Island, R. I	41	10	71	36	....	....	....	....	....	....	....	....	....	Nov. 20	Dec. 6	Nov. 19	Nov. 19
Omaha, Nebr	41	16	95	56	(2)	(2)	(2)	Sept. 15	Sept. 20	Sept. 29	Sept. 17	Sept. 12	Oct. 23	Sept. 29	Oct. 13	Oct. 19	Sept. 26
New Haven, Conn	41	18	72	56	....	Sept. 15	Sept. 15	Sept. 22	Sept. 11	Oct. 3	Oct. 23	Sept. 23	Sept. 26	Sept. 24	Oct. 6	Oct. 27	Sept. 10
New London, Conn	41	21	72	5	Oct. 20	Oct. 11	Oct. 26	Nov. 1	Sept. 23	Oct. 8	Oct. 7	Aug. 24	Sept. 26	Sept. 24	Oct. 5	Oct. 27	Oct. 5
Sandusky, Ohio	41	25	82	40	....	....	....	....	....	....	Sept. 18	Sept. 16	Oct. 25	Sept. 30	Oct. 5	Oct. 20	Oct. 16
Cleveland, Ohio	41	30	81	42	(2)	(2)	(2)	Oct. 15	Sept. 24	(2)	Nov. 7	Oct. 7	Oct. 20	Sept. 23	Oct. 6	Oct. 20	Sept. 10
Davenport, Iowa	41	30	90	38	....	Oct. 23	Sept. 19	Oct. 12	Sept. 18	Sept. 27	Sept. 18	Sept. 11	Sept. 19	Oct. 4	Oct. 5	Oct. 17	Sept. 9
Des Moines, Iowa	41	35	93	37	....	....	....	....	....	....	....	Sept. 10	Sept. 8	Sept. 9	Oct. 18	Sept. 23	Sept. 9
Toledo, Ohio	41	40	83	34	Sept. 20	Oct. 14	Sept. 20	Oct. 13	Sept. 18	Oct. 9	Sept. 19	Sept. 28	Sept. 25	Sept. 30	Oct. 5	Sept. 24	Sept. 6
Chicago, Ill	41	52	87	38	(2)	Sept. 27	Sept. 19	Nov. 1	Sept. 23	Sept. 27	Oct. 5	Sept. 21	Sept. 24	Sept. 29	Oct. 19	Sept. 22	Sept. 26
Provincetown, Mass	42	8	70	11	....	....	....	....	....	....	....	....	....	....	....	....	Sept. 4
Erie, Pa	42	7	80	5	....	....	Sept. 15	Oct. 14	Oct. 9	Oct. 12	(2)	(2)	Sept. 20	Oct. 28	Oct. 6	Oct. 21	Sept. 11
Detroit, Mich	42	20	83	3	Sept. 21	Sept. 28	Oct. 6	Sept. 3	Sept. 17	Aug. 27	Sept. 1	Aug. 26	Sept. 9	Sept. 30	Oct. 5	Oct. 14	Sept. 9
Boston, Mass	42	21	71	4	Nov. 19	(2)	Oct. 30	Nov. 13	Sept. 12	Nov. 26	Oct. 28	Sept. 29	Sept. 26	Aug. 16	Oct. 5	Oct. 21	Sept. 10
Dubuque, Iowa	42	30	90	44	....	....	Sept. 7	Sept. 30	Oct. 18	Oct. 14	Oct. 6	Sept. 11	Sept. 4	Sept. 8	Oct. 5	Sept. 23	Sept. 8
Albany, N. Y	42	39	73	45	....	....	....	Oct. 5	Sept. 22	Oct. 8	Oct. 23	Sept. 23	Sept. 26	Sept. 24	Oct. 5	Sept. 28	Sept. 6
Buffalo, N. Y	42	53	78	53	Sept. 17	Oct. 24	Oct. 15	Oct. 15	Sept. 11	Oct. 9	Oct. 22	Sept. 23	Sept. 11	Oct. 13	Oct. 5	Sept. 25	Sept. 9
Yankton, Dak	42	54	97	28	....	....	Sept. 13	Sept. 15	Sept. 10	Sept. 18	Sept. 17	Sept. 12	Sept. 24	Sept. 8	Sept. 28	Sept. 21	Sept. 8
Port Huron, Mich	43	0	82	26	....		....	(2)	Sept. 18	Aug. 21	Oct. 12	Sept. 22	Sept. 10	Oct. 19	Oct. 6	Sept. 25	Sept. 8
Milwaukee, Wis	43	2	87	54	(2)	Oct. 11	Oct. 7	Nov. 2	Aug. 22	Sept. 26	Sept. 18	Oct. 19	Sept. 25	Sept. 14	Oct. 19	Sept. 24	Sept. 10
Grand Haven, Mich	43	5	86	18	Sept. 21	(2)	(2)	Oct. 19	Sept. 11	Aug. 27	Oct. 6	Aug. 26	Sept. 20	Sept. 8	Oct. 5	Sept. 21	Sept. 9

[1] No frost observed.
[2] No reliable record.
[3] Frost every month in the year.

Table showing the first frost at stations of the Signal Service, United States Army, east of the Rocky Mountains, &c.—Continued.

Stations.	Latitude.	Longitude.	Winter of—												
			1871-'72.	1872-'73.	1873-'74.	1874-'75.	1875-'76.	1876-'77.	1877-'78.	1878-'79.	1879-'80.	1880-'81.	1881-'82.	1882-'83.	1883-'84.
	° '	° '													
Rochester, N. Y	43 8	77 42	(1)	(1)	Sept. 15	Oct. 12	Sept. 23	Oct. 8	Oct. 7	Sept. 23	Sept. 11	Oct. 14	Oct. 11	Oct. 4	(1)
Oswego, N. Y	43 29	76 35	(1)	Oct. 17	Oct. 29	Oct. 15	Oct. 14	Oct. 18	Oct. 23	Sept. 23	Sept. 25	Oct. 1	Oct. 5	Oct. 3	Sept. 11
Portland, Me	43 39	70 15	Oct. 20	Oct. 29	Oct. 30	Oct. 22	Oct. 3	Oct. 2	Oct. 7	Sept. 16	Sept. 26	Aug. 27	Oct. 5	Oct. 22	Sept. 27
La Crosse, Wis	43 49	91 15	....	(1)	Sept. 14	Sept. 15	Sept. 17	Sept. 26	Oct. 6	Sept. 11	Sept. 24	Sept. 8	Sept. 28	Aug. 10	Sept. 8
Mt. Washington, N. H	44 16	71 18	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	Sept. 12	(2)	Sept. 1
Huron, Dak	44 21	98 9	....	....	....	....	....	....	....	....	....	....	Sept. 15	Sept. 20	July 17
Deadwood, Dak	44 23	103 43	....	....	....	....	....	....	....	Sept. 10	Sept. 6	Sept. 13	Oct. 2	Sept. 22	Sept. 14
Fort Bennett, Dak	44 43	100 39	....	....	....	....	....	....	....	....	....	Sept. 18	Sept. 30	Oct. 10	Sept. 29
Eastport, Me	44 54	66 59	....	....	Sept. 18	Sept. 23	Sept. 11	Oct. 16	Sept. 19	Sept. 8	Sept. 26	Sept. 24	Oct. 7	Oct. 3	Sept. 11
Saint Paul, Minn	44 58	93 3	Sept. 20	Sept. 22	Sept. 12	Sept. 15	Sept. 17	Sept. 12	Sept. 17	Sept. 10	Sept. 4	Sept. 13	Sept. 28	Sept. 20	Sept. 8
Alpena, Mich	45 5	83 30	....	....	....	Oct. 14	Sept. 22	Aug. 21	Sept. 21	Sept. 22	Sept. 10	Sept. 22	Oct. 1	Sept. 24	Aug. 14
Fort Custer, Mont	45 42	107 34	....	....	....	....	....	....	....	....	....	Sept. 12	Sept. 7	(1)	Sept. 21
Mackinaw City, Mich	45 47	84 39	....	....	....	....	....	....	....	....	....	....	....	Sept. 27	Sept. 10
Escanaba, Mich	45 48	87 5	(1)	Sept. 26	(1)	Oct. 12	Sept. 28	(1)	Sept. 21	Sept. 11	Aug. 16	Sept. 8	Aug. 15	Sept. 23	Aug. 14
Helena, Mont	46 34	112 4	....	....	....	....	....	....	....	....	....	Sept. 20	Sept. 6	Sept. 29	Sept. 20
Marquette, Mich	46 34	87 24	(1)	(1)	(1)	Oct. 20	Sept. 22	Sept. 18	Sept. 5	Sept. 5	Sept. 12	Sept. 8	Sept. 28	Sept. 24	Aug. 14
Bismarck, Dak	46 47	100 38	....	....	....	Sept. 15	Sept. 19	Sept. 20	Sept. 17	Sept. 10	Sept. 7	Sept. 18	Sept. 7	Sept. 21	Sept. 2
Duluth, Minn	46 48	92 6	(1)	(1)	Sept. 16	Sept. 15	Sept. 17	Sept. 29	Oct. 5	Sept. 10	Sept. 9	Sept. 8	Sept. 28	Sept. 20	Sept. 8
Moorhead, Minn	46 52	96 44	....	Sept. 11	Sept. 13	Sept. 14	Sept. 17	Sept. 2	Sept. 18	Sept. 10	Sept. 4	Sept. 8	Sept. 7	Sept. 20	Sept. 5
Fort Shaw, Mont	47 31	111 48	....	....	....	....	....	....	....	....	....	Aug. 27	Sept. 6	Sept. 19	Aug. 22
Fort Benton, Mont	47 50	110 40	....	....	....	....	....	....	....	....	....	Sept. 12	Sept. 6	Oct. 10	Sept. 20
Fort Buford, Dak	48 0	103 56	....	....	....	....	....	....	....	....	Sept. 7	Sept. 13	Sept. 16	Sept. 21	Aug. 22
Poplar River, Mont	48 8	105 10	....	....	....	....	....	....	....	....	....	....	....	Sept. 23	Aug. 22
Fort Assinaboine, Mont.	48 32	109 42	....	....	....	....	....	....	....	....	....	Sept. 12	Sept. 5	Sept. 22	Sept. 15
Saint Vincent, Minn	48 56	97 14	....	....	Sept. 13	Sept. 15	Aug. 21	Aug. 26	Sept. 1	Aug. 25	Sept. 13	Sept. 7	Aug. 6	Sept. 20	Sept. 8

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[1] No reliable record.

[2] Frost every month in the year.

APPENDIX 69.

Table showing the last frost at stations of the Signal Service, United States Army, east of the Rocky Mountains, for each winter from the commencement of observations to the winter of 1883–'84.

Stations.	Latitude.	Longitude.	Winter of— 1871–'72.	1872–'73.	1873–'74.	1874–'75.	1875–'76.	1876–'77.	1877–'78.	1878–'79.	1879–'80.	1880–'81.	1881–'82.	1882–'83.	1883–'84.
	° '	° '													
Key West, Fla	24 34	81 49	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Brownsville, Tex	25 53	97 26					(1)	(1)	(1)	(2)	(2)	Jan. 11	(1)	(1)	Jan. 21
Rio Grande City, Tex	26 23	98 48					(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 2
Indianola, Tex	28 32	96 31	(1)	(1)	Apr. 9	Apr. 1	(1)	(1)	(1)	Jan. 12	Mar. 16	Apr. 14	Mar. 10	Jan. 23	Apr. 22
Sanford, Fla	28 48	81 23													Jan. 22
Cedar Keys, Fla	29 8	83 2										Jan. 26	Jan. 31	Jan. 24	Jan. 22
Galveston, Tex	29 18	94 47	Jan. 24	Jan. 20	Jan. 5	Jan. 11	(1)	Jan. 1	Feb. 11	Jan. 9	(1)	Jan. 24	(1)	Feb. 18	Feb. 15
New Orleans, La	29 58	90 4	Feb. 3	Jan. 19	Jan. 30	Feb. 10	Feb. 16	Feb. 18	Jan. 25	Feb. 11	Feb. 27	Apr. 2	Feb. 5	Jan. 23	Feb. 15
Jacksonville, Fla	30 20	81 39	Jan. 31	Mar. 7	Jan. 26	Feb. 12	Mar. 22	Feb. 21	Mar. 5	Feb. 20	Feb. 16	Mar. 28	Feb. 6	Mar. 23	Feb. 21
Pensacola, Fla	30 25	87 13									Apr. 10	Apr. 2	Feb. 6	Mar. 23	Mar. 1
Fort Davis, Tex	30 38	103 56								Feb. 7	Apr. 9	Mar. 16	Apr. 13	May 19	Apr. 22
Mobile, Ala	30 41	88 2	Feb. 23	Mar. 27	Jan. 31	Apr. 3	Mar. 22	Mar. 10	Feb. 12	Apr. 5	Apr. 10	Apr. 5	Feb. 6	Mar. 23	Mar. 1
Fort Stockton, Tex	30 58	102 53						Jan. 6	Jan. 2	Jan. 10	Jan. 6	Apr. 13	Mar. 8	(1)	Mar. 25
Fort Concho, Tex	31 25	100 24						(2)	(2)	Jan. 19	Mar. 16	Feb, 14	Mar. 10	Jan. 11	Feb. 28
Palestine, Tex	31 45	95 40				Mar. 20	May 8	Mar. 25	Feb. 24	Apr. 2	Feb. 14	Mar. 22	(2)	Mar. 20	Apr. 23
El Paso, Tex	31 47	106 30								(2)	(2)	(2)	(2)	Feb. 18	Feb. 9
Savannah, Ga	32 5	81 5	(2)	(2)	Feb. 26	Apr. 19	Apr. 17	Mar. 23	Jan. 16	Feb. 10	Apr. 10	Mar. 27	Feb. 2	Mar. 23	Apr. 10
Vicksburg, Miss	32 22	90 53	(2)	Mar. 27	Apr. 10	(2)	Mar. 17	Jan. 24	Feb. 12	Apr. 5	Apr. 10	Apr. 14	Apr. 14	Mar. 20	Jan. 26
Montgomery, Ala	32 23	86 18		Mar. 6	Apr. 30	Apr. 8	Mar. 13	Mar. 11	Mar. 5	Apr. 6	Apr. 13	Apr. 15	Mar. 23	Mar. 28	Mar. 16
Shreveport, La	32 30	93 40	Feb. 3	Apr. 9	Feb. 24	Feb. 21	Mar. 21	Dec. 16	Apr. 5	Feb. 9	Feb. 14	Feb. 21	Mar. 22	Jan. 9	Apr. 9
Charleston, S. C	32 47	79 56	Nov. 17	(2)	Jan. 29	Feb. 12	Mar. 22	Mar. 11	Feb. 6	Apr. 5	Nov. 21	Apr. 2	Mar. 23	Mar. 23	Feb. 29
Augusta, Ga	33 28	81 54	(2)	(2)	Apr. 30	Apr. 19	Mar. 22	(2)	Mar. 5	May 4	Apr. 13	Apr. 15	Apr. 18	Apr. 3	Apr. 10
Atlanta, Ga	33 45	84 23								Mar. 18	Apr. 12	Apr. 5	Mar. 23	May 23	Apr. 11
Smithville, N. C	33 55	78 1						(2)	Apr. 5	Mar. 19	Feb. 16	Apr. 6	Feb. 1	Mar. 23	Apr. 10
Wilmington, N. C	34 14	77 57	(2)	(2)	(2)	Feb. 21	Apr. 19	May 2	Apr. 7	Apr. 19	Apr. 10	Mar. 20	Mar. 23	Mar. 28	Mar. 4
Fort Sill, Ind. T	34 40	98 23							Feb. 17	Jan. 18	Mar. 19	Mar. 19	Mar. 10	Feb. 11	Apr. 20
Fort Macon, N. C	34 42	76 40								Dec. 20	Jan. 14	Apr. 6	Nov. 25	Mar. 28	Mar. 16
Little Rock, Ark	34 45	92 6									Mar. 17	Apr. 14	Apr. 17	May 22	Apr. 9
Chattanooga, Tenn	35 4	85 15								May 3	Apr. 11	Apr. 5	Apr. 17	May 23	Apr. 11
Memphis, Tenn	35 9	90 3	Mar. 23	Mar. 26	Apr. 29	Apr. 18	Mar. 29	Mar. 22	Apr. 11	Apr. 5	May 1	Apr. 14	May 17	May 23	Apr. 25
Charlotte, N. C	35 13	80 51								May 3	May 1	Apr. 7	Mar. 26	May 23	Apr. 11
Hatteras, N. C	35 15	75 40					Mar. 5	Dec. 15	Dec. 31	Apr. 4	Feb. 25	(2)	Jan. 4	Apr. 4	Mar. 4
Fort Smith, Ark	35 22	94 24												May 22	Apr. 23
Fort Elliott, Tex	35 30	100 21										Mar. 28	Apr. 15	Feb. 7	Mar. 18

[1] No frost observed.

[2] No reliable record.

Table showing the last frost at stations of the Signal Service, United States Army, &c.—Continued.

Stations.	Latitude.	Longitude.	WINTER OF—												
			1871–'72.	1872–'73.	1873–'74.	1874–'75.	1875–'76.	1876–'77.	1877–'78.	1878–'79.	1879–'80.	1880–'81.	1881–'82.	1882–'83.	1883–'84.
	° ′	° ′													
Knoxville, Tenn	35 56	83 58	Apr. 3	Apr. 25	Apr. 30	Apr. 23	Apr. 19	Mar. 30	Mar. 26	May 3	May 1	Apr. 10	May 17	May 24	Apr. 26
Kitty Hawk, N. C	36 0	75 42	....	....	....	Apr. 19	Feb. 25	Apr. 16	Feb. 7	Mar. 6	Feb. 7	Feb. 7	Jan. 1	Mar. 17	Apr. 12
Nashville, Tenn	36 10	86 47	Apr. 2	Apr. 26	Apr. 30	Apr. 19	Apr. 6	May 1	Mar. 26	Apr. 18	Apr. 12	Apr. 14	May 16	May 24	Apr. 25
Norfolk, Va	36 51	76 17	(1)	(1)	(1)	Mar. 26	Mar. 10	Feb. 27	Mar. 23	Mar. 19	Mar. 25	Jan. 29	Feb. 26	Mar. 23	Feb. 2
Cape Henry, Va	36 56	76 0	....	....	....	Apr. 19	Feb 7	Mar. 5	Jan. 18	Mar. 6	Feb. 6	Mar. 29	Apr. 12	(1)	Dec. 15
Cairo, Ill	37 0	89 10	Apr. 2	Apr. 26	Apr. 11	Apr. 18	Apr. 18	Apr. 30	Feb. 28	Apr. 18	Apr. 20	Apr. 14	Apr. 17	May 23	Apr. 11
Lynchburg, Va	37 25	79 9	(1)	Apr. 18	May 22	May 22	Apr. 18	Apr. 15	Mar. 26	May 24	Mar. 25	Apr. 17	May 3	Apr. 4	Apr. 12
Dodge City, Kans	37 45	100 0	....	....	....	Apr. 26	Apr. 14	May 7	Apr. 4	Apr. 17	Apr. 8	Mar. 20	Apr. 15	(1)	May 2
Chincoteague, Va	37 55	75 23	....	....	....	....	....	....	....	....	....	Apr. 7	Apr. 10	Mar. 14	Feb. 8
West Las Animas, Colo	38 4	103 12	....	....	....	....	....	....	....	....	....	....	....	May 26	Apr. 21
Louisville, Ky	38 15	85 45	Feb. 26	(1)	(1)	Apr. 3	(1)	May 2	May 15	Apr. 8	Apr. 12	Apr. 14	Feb. 25	Apr. 25	Apr. 9
Saint Louis, Mo	38 38	90 12	Apr. 1	Mar. 27	Apr. 26	May 2	Apr. 30	Apr. 30	Mar. 25	Apr. 5	Mar. 29	Apr. 5	Apr. 12	May 22	(1)
Delaware Breakwater, Del	38 48	75 10	....	....	....	....	....	....	....	....	(1)	Apr. 7	Feb. 27	(3)	May 29
Pike's Peak, Colo	38 50	105 2	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Washington City	38 54	77 2	Apr. 23	(1)	(1)	Apr. 13	Apr. 25	Apr. 15	Mar. 16	May 3	Apr. 9	Apr. 21	Apr. 25	Apr. 30	Apr. 12
Cape May, N. J	38 56	74 58	(1)	(1)	(1)	Mar. 9	(1)	(1)	May 14	May 24	Jan. 26	Mar. 16	May 19	Apr. 3	Mar. 16
Cincinnati, Ohio	39 6	84 30	Mar. 1	(1)	(1)	Apr. 27	May 1	May 2	May 13	Apr. 22	May 1	Apr. 10	May 23	May 23	May 29
Baltimore, Md	39 18	76 37	(1)	(1)	(1)	(1)	Mar. 5	(1)	(1)	(1)	(1)	Apr. 21	May 8	Apr. 25	Mar. 17
Leavenworth, Kans	39 19	94 57	Apr. 1	Apr. 25	Apr. 23	May 2	Apr. 14	May 1	Apr. 4	Apr. 18	Apr. 30	Apr. 13	Apr. 16	May 22	Apr. 24
Atlantic City, N. J	39 22	74 25	....	....	(1)	Mar. 6	(1)	(1)	Mar. 26	Jan. 22	(1)	Mar. 11	Mar. 29	Apr. 30	Mar. 22
Denver, Colo	39 45	105 0	(1)	(1)	(1)	June 2	May 8	June 9	May 10	Apr. 27	May 11	Apr. 9	Apr. 22	June 13	May 7
Barnegat City, N. J	39 46	74 6	....	....	(1)	(1)	(1)	(1)	Jan. 19	Nov. 27	Apr. 8	Mar. 8	Feb. 27	Apr. 30	Mar. 31
Indianapolis, Ind	39 46	86 10	(1)	(1)	May 19	Apr. 17	May 1	May 4	May 13	May 8	Apr. 12	Apr. 14	May 17	May 23	May 29
Springfield, Ill	39 48	89 39	....	....	....	....	....	....	....	....	Apr. 30	Apr. 29	May 29	May 23	May 29
Philadelphia, Pa	39 57	75 9	(1)	(1)	Mar. 2	(1)	Jan. 8	Apr. 13	Mar. 16	(1)	Apr. 12	Apr. 2	Apr. 24	Jan. 30	Apr. 30
Columbus, Ohio	39 58	83 0	....	....	....	....	....	....	....	May 2	Apr. 8	Apr. 14	May 3	Apr. 25	May 30
Kookuk, Iowa	40 22	91 26	(1)	Apr. 12	(1)	May 2	May 23	June 10	(1)	Apr. 18	Apr. 30	Apr. 16	May 22	May 22	Apr. 24
Sandy Hook, N. J	40 28	74 0	....	....	(1)	(1)	(1)	(1)	Mar. 25	(1)	Feb. 17	Feb. 17	Apr. 11	Apr. 9	Feb. 22
Pittsburg, Pa	40 32	80 2	(1)	(1)	Apr. 29	Apr. 23	May 2	May 3	June 6	June 8	May 1	May 4	May 17	May 17	May 30
New York City	40 43	74 0	(1)	(1)	(1)	(1)	(1)	(1)	(1)	Apr. 20	May 26	Apr. 4	Mar. 25	(1)	(1)
Cheyenne, Wyo	41 8	104 48	May 9	May 10	May 15	June 2	June 19	June 9	May 10	June 3	May 31	May 20	(1)	June 13	May 14
North Platte, Nebr	41 8	100 45	....	....	....	June 7	(1)	June 8	May 10	June 2	June 28	May 20	June 5	May 30	May 13
Block Island, R. I	41 10	71 36	....	....	....	....	....	....	....	....	....	Feb. 8	Mar. 23	Jan. 8	Apr. 28
Omaha, Nebr	41 16	95 56	(1)	(1)	(1)	(1)	(1)	(1)	May 12	May 6	Apr. 7	Apr. 22	May 25	May 5	May 2
New Haven, Conn	41 18	72 56	....	(1)	May 12	June 14	May 31	May 25	May 14	May 27	Apr. 22	May 4	May 26	May 1	June 16
New London, Conn	41 21	72 5	Apr. 23	May 4	May 12	May 3	May 24	May 5	June 6	May 10	May 1	Apr. 7	May 3	Apr. 29	June 15
Sandusky, Ohio	41 25	82 40	....	....	....	....	....	....	Apr. 1	May 1	Apr. 8	Apr. 28	May 23	(4)	Apr. 12
Cleveland, Ohio	41 30	81 42	(1)	Apr. 15	(1)	May 18	May 26	Apr. 6	Apr. 5	May 8	Apr. 20	May 4	May 3	May 17	May 29
Davenport, Iowa	41 30	90 38	(1)	Apr. 29	Apr. 29	May 6	May 23	May 2	May 13	Apr. 18	Apr. 30	May 3	May 23	May 22	May 29
Des Moines, Iowa	41 35	93 37	....	....	....	....	....	....	....	Apr. 28	Apr 30	Apr. 16	Mar. 30	May 22	May 2
Toledo, Ohio	41 40	83 34	Apr. 15	Apr. 28	May 1	May 17	May 1	May 2	May 13	May 8	Apr. 12	Apr. 30	May 28	June 1	May 29

Chicago, Ill	41	52	87	38	Apr. 16	(1)	(1)	May 6	(1)	Apr. 14	May 12	Apr. 18	Apr. 17	May 8	June 1	June 14	May 29
Erie, Pa	42	7	80	5	....	....	(1)	(1)	(1)	(1)	(1)	June 7	Mar. 30	(1)	Feb. 14	Apr. 30	Apr. 7
Detroit, Mich	42	20	83	8	(1)	(1)	(1)	May 6	Apr. 30	Apr. 13	June 9	June 17	May 5	May 8	June 6	Apr. 27	May 29
Boston, Mass	42	21	71	4	Mar. 28	(1)	(1)	(1)	(1)	(1)	May 13	(1)	Apr. 9	May 4	May 16	May 1	Mar. 22
Dubuque, Iowa	42	30	90	44	....	....	(1)	May 16	Apr. 18	Apr. 30	Apr. 6	May 16	Apr. 17	Apr. 16	June 1	June 14	May 30
Albany, N. Y	42	39	73	45	....	....	(1)	Mar. 5	(1)	(1)	May 14	June 18	Mar. 26	June 7	May 24	June 1	May 31
Buffalo, N. Y	42	53	78	53	May 30	May 15	May 7	May 18	May 24	May 5	May 13	May 23	May 15	May 1	May 23	Apr. 21	Mar. 28
Yankton, Dak	42	54	97	28	....	(1)	(1)	(1)	(1)	May 1	May 10	Apr. 18	Apr. 30	May 2	May 23	May 22	May 18
Port Huron, Mich	43	0	82	26	....	....	....	May 3	May 1	June 23	May 12	May 2	May 4	June 24	May 24	June 14	May 29
Milwaukee, Wis	43	2	87	54	(1)	(1)	(1)	Apr. 22	Feb. 25	Mar. 1	(1)	June 7	May 15	June 23	June 1	Apr. 25	May 29
Grand Haven, Mich	43	5	86	18	(1)	(1)	(1)	(1)	(1)	May 3	June 9	June 7	Mar. 30	Apr. 16	Apr. 21	June 14	May 29
Rochester, N. Y	43	8	77	42	(1)	(1)	June 14	May 17	May 22	May 24	May 16	June 7	May 1	May 4	May 6	May 17	May 30
Oswego, N. Y	43	29	76	35	(1)	May 30	May 8	May 18	May 2	Apr. 26	May 15	June 7	May 1	June 7	May 16	May 17	May 30
Portland, Me	43	39	70	15	(1)	(1)	(1)	(1)	(1)	(1)	May 16	June 8	Mar. 23	May 7	Apr. 12	May 14	June 14
La Crosse, Wis	43	49	91	15	....	(1)	Apr. 29	May 2	Apr. 18	May 2	May 13	June 16	May 21	Apr. 16	June 5	May 22	May 29
Mount Washington, N. H	44	16	71	18	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	June 30	(3)	May 30
Huron, Dak	44	21	98	9	....	....	....	....	....	....	....	....	....	....	May 22	Apr. 30	May 13
Deadwood, Dak	44	23	103	43	....	....	....	....	....	....	....	Apr. 17	Apr. 29	Apr. 1	Apr. 29	May 15	Apr. 12
Fort Bennett, Dak	44	43	100	39	....	....	....	....	....	....	....	....	....	Apr. 9	May 23	May 30	Apr. 8
Eastport, Me	44	54	66	50	....	June 5	June 2	May 6	May 26	Apr. 3	Apr. 18	May 22	May 1	June 7	May 16	Apr. 30	May 30
Saint Paul, Minn	44	58	93	3	(1)	(1)	(1)	May 5	May 14	June 12	June 12	Apr. 2	May 21	Apr. 16	May 22	May 21	Apr. 21
Alpena, Mich	45	5	83	30	....	....	....	Apr. 21	(1)	(1)	June 8	June 7	June 3	June 11	May 23	June 1	May 17
Fort Custer, Mont	45	42	107	34	....	....	....	....	....	....	....	....	....	May 12	May 23	(1)	May 13
Mackinaw City, Mich	45	47	84	39	....	....	....	....	....	....	....	....	....	....	....	Apr. 30	May 28
Escanaba, Mich	45	48	87	5	(1)	(1)	(1)	(1)	(1)	(1)	May 30	Apr. 20	June 8	June 22	May 1	May 21	May 29
Helena, Mont	46	34	112	4	....	....	....	....	....	....	....	....	May 10	Apr. 13	May 20	May 5	May 21
Marquette, Mich	46	34	87	24	(1)	(1)	(1)	(1)	(1)	May 26	Apr. 16	June 2	May 13	June 7	June 20	May 28	May 14
Bismarck, Dak	46	47	100	38	....	....	....	May 12	May 5	Apr. 20	May 10	May 6	Apr. 29	May 2	May 22	June 2	May 1
Duluth, Minn	46	48	92	6	(1)	(1)	(1)	May 17	(1)	(1)	(1)	(1)	May 21	Apr. 8	May 1	May 11	Apr. 25
Moorhead, Minn	46	52	96	44	(1)	May 11	May 18	June 4	June 2	June 9	Apr. 3	May 2	June 1	May 3	June 4	June 3	May 8
Fort Shaw, Mont	47	31	111	48	....	....	....	....	....	....	....	....	(1)	May 17	May 23	May 29	Apr. 21
Fort Benton, Mont	47	50	110	40	....	....	....	....	....	....	....	....	(1)	(1)	May 21	May 8	May 1
Fort Buford, Dak	48	0	103	56	....	....	....	....	....	....	....	May 30	May 9	Apr. 28	Apr. 30	Apr. 24	May 5
Poplar River, Mont	48	8	105	10	....	....	....	....	....	....	....	....	....	....	....	May 10	May 5
Fort Assinaboine, Mont	48	32	109	42	....	....	....	....	....	....	....	....	(1)	Apr. 9	May 21	June 1	Apr. 18
Saint Vincent, Minn	48	56	97	14	....	May 18	May 23	June 12	June 4	May 22	June 4	June 6	June 1	Apr. 29	May 26	May 30	May 20

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[1] No reliable record.

[2] No frost observed.

[3] Frost every month in the year.

[4] Station temporarily closed.

APPENDIX 70.*

Table showing the first snowfall at stations of the Signal Service, United States Army, east of the Rocky Mountains, for each winter from the commencement of observations to the winter of 1883–'84.

Stations.	Latitude.	Longitude.	WINTER OF—												
			1871–'72.	1872–'73.	1873–'74.	1874–'75.	1875–'76.	1876–'77.	1877–'78.	1878–'79.	1879–'80.	1880–'81.	1881–'82.	1882–'83.	1883–'84.
	° ′	° ′													
Key West, Fla	24 34	81 49	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Brownsville, Tex	25 53	97 26	....	....	....	....	(1)	(1)	(1)	(1)	Dec. 25	Dec. 31	(1)	(1)	(1)
Rio Grande City, Tex	26 23	98 45	....	....	....	....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Indianola, Tex	28 32	96 31	(1)	(1)	Jan. 5	(1)	(1)	(1)	(1)	(1)	(1)	Nov. 17	(1)	Feb. 3	(1)
Sanford, Fla	28 48	81 23	....	....	....	....	....	....	....	....	....	....	....	....	(1)
Cedar Keys, Fla	29 8	83 2	....	....	....	....	....	....	....	....	....	(1)	(1)	(1)	(1)
Galveston, Tex	29 18	94 47	(1)	(1)	Jan. 5	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 28	(1)	(1)	(1)
New Orleans, La	29 58	90 4	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 1	Dec. 26	Jan. 5	Dec. 29	Dec. 25	(1)	(1)
Jacksonville, Fla	30 20	81 39	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pensacola, Fla	30 25	87 13	....	....	....	....	....	....	....	....	(1)	(1)	(1)	(1)	(1)
Fort Davis, Tex	30 38	103 56	....	....	....	....	....	....	....	Nov. 16	(2)	Nov. 5	(2)	Nov. 17	Dec. 10
Mobile, Ala	30 41	88 2	Jan. 25	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 4	(1)	Jan. 24	(1)	Jan. 9	(1)
Fort Stockton, Tex	30 53	102 53	....	....	....	....	....	Nov. 22	Dec. 28	Dec. 14	Feb. 2	Nov. 5	Feb. 2	Nov. 18	Dec. 10
Fort Concho, Tex	31 25	100 24	....	....	....	....	....	(2)	Jan. 3	Dec. 20	Feb. 1	Nov. 15	(1)	Nov. 18	(1)
Palestine, Tex	31 45	95 40	....	....	....	Mar. 6	Mar. 20	Dec. 28	Jan. 3	Dec. 25	Dec. 24	Nov. 5	(1)	Jan. 1	Feb. 13
El Paso, Tex	31 47	106 30	....	....	....	....	....	....	....	Nov. 24	Jan. 8	Nov. 5	(2)	Nov. 18	Dec. 11
Savannah, Ga	32 5	81 5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Vicksburg, Miss	32 22	90 53	Dec. 2	Dec. 10	Jan. 16	Jan. 4	Feb. 3	Dec. 28	Feb. 10	Jan. 4	Dec. 25	Dec. 28	(1)	Dec. 15	Jan. 1
Montgomery, Ala	22 23	86 18	....	(1)	(1)	Dec. 31	(1)	Dec. 29	(1)	Dec. 10	(1)	Dec. 29	(1)	Nov. 29	Jan. 8
Shreveport, La	32 30	93 40	Dec. 2	Dec. 24	Jan. 15	Jan. 4	(1)	Dec. 26	Jan. 3	Nov. 26	Dec. 25	Jan. 1	Jan. 29	Jan. 20	Jan. 7
Charleston, S. C	32 47	79 56	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 30	(1)	(1)
Augusta, Ga	33 28	81 54	Nov. 30	Dec. 11	Dec. 27	(1)	Mar. 19	Jan. 1	Jan. 8	Feb. 14	Nov. 19	Dec. 29	Dec. 30	Nov. 20	Jan. 7
Atlanta, Ga	33 45	84 23	....	....	....	....	....	....	....	Dec. 10	Nov. 19	Dec. 29	Dec. 30	Nov. 20	Jan. 5
Smithville, N. C	33 55	78 1	....	....	....	....	....	(1)	(1)	(1)	(1)	Jan. 24	(1)	(1)	Jan. 5
Wilmington, N. C	34 14	77 57	Jan. 25	Dec. 12	(1)	(1)	(1)	(1)	Feb. 3	Jan. 19	Nov. 19	Nov. 15	Jan. 30	(1)	Jan. 5
Fort Sill, Ind. T	34 40	98 23	....	....	....	....	....	....	Nov. 29	Dec. 13	Dec. 30	Nov. 12	Jan. 16	Nov. 19	(3)
Fort Macon, N. C	34 42	76 40	....	....	....	....	....	....	....	(1)	(1)	Jan. 24	Jan. 1	Dec. 16	Dec. 17
Little Rock, Ark	34 45	92 6	....	....	....	....	....	....	....	....	Dec. 24	Nov. 16	Jan. 30	Nov. 20	Jan. 7
Chattanooga, Tenn	35 4	85 15	....	....	....	....	....	....	....	(3)	Dec. 25	Nov. 25	Nov. 24	Nov. 29	Dec. 17
Memphis, Tenn	35 9	90 3	Nov. 30	Dec. 10	Dec. 25	Nov. 28	Dec. 8	Nov. 19	Dec. 5	Nov. 27	Dec. 25	Nov. 13	Jan. 30	Nov. 27	Dec. 19
Charlotte, N. C	35 13	80 51	....	....	....	....	....	....	....	Dec. 26	Nov. 19	Dec. 19	Jan. 30	Dec. 17	Jan. 5
Hatteras, N. C	35 15	75 40	....	....	....	....	Dec. 24	Dec. 1	Dec. 27	Dec. 27	Jan. 19	Jan. 24	(1)	Dec. 26	Dec. 17
Fort Smith, Ark	35 22	94 24	....	....	....	....	....	....	....	....	....	....	....	Nov. 24	Jan. 6
Fort Elliott, Tex	35 30	100 21	....	....	....	....	....	....	....	....	....	Mar. 12	Nov. 16	Oct. 18	Dec. 31
Knoxville, Tenn	35 56	83 58	Nov. 14	Nov. 29	Nov. 12	Dec. 7	Dec. 8	Nov. 8	Dec. 6	Dec. 10	Dec. 25	Dec. 19	Nov. 24	Nov. 28	Dec. 16
Kitty Hawk, N. C	36 0	75 42	....	....	....	(3)	Feb. 2	Nov. 30	Nov. 30	Dec. 17	Mar. 29	Dec. 10	Jan. 1	Dec. 29	Dec. 17
Nashville, Tenn	36 10	86 47	Nov. 14	Nov. 15	Oct. 28	Nov. 24	Feb. 1	Nov. 19	Nov. 29	Nov. 27	Dec. 25	Nov. 6	Nov. 24	Nov. 29	Dec. 14

Norfolk, Va	36 51	76 17	(2)	Nov. 29	Dec. 2	Nov. 30	Nov. 30	Dec. 1	Nov. 29	Dec. 17	Dec. 6	Dec. 29	Dec. 30	Nov. 28	Dec. 23
Cape, Henry, Va	36 56	76 0	....	....	....	Jan. 7	Jan. 31	Oct. 15	Nov 29	Dec. 17	Dec. 26	Dec. 7	Jan 1	Jan. 9	Dec. 23
Cairo, Ill	37 0	89 10	Nov. 14	Nov. 15	Nov. 18	Nov 24	Dec. 8	Nov. 29	Jan. 3	Nov. 27	Jan. 12	Nov. 6	Dec. 30	Nov. 28	Dec. 18
Lynchburg, Va	37 25	79 9	Dec. 8	Dec. 14	Dec. 5	Nov. 29	Feb. 4	Nov. 30	Dec. 30	Dec. 20	Nov. 20	Nov. 20	Dec. 30	Nov. 28	Dec. 16
Dodge City, Kans	37 45	100 0	....	....	....	Oct. 30	Nov. 13	Nov. 1	Oct. 19	Dec. 12	Nov. 27	Oct. 16	Nov. 7	Nov. 12	Dec. 18
Chincoteague, Va	37 55	75 23	....	....	....	....	....	....	....	....	....	Nov. 26	Dec. 15	Nov. 29	Dec. 21
West Las Animas, Colo	38 4	103 12	....	....	....	....	....	....	....	....	....	....	....	Oct. 17	Dec. 17
Louisville, Ky	38 15	85 45	Dec. 21	Dec. 8	Dec. 5	Dec. 7	Dec. 8	Dec. 8	Jan. 8	Dec. 6	Dec. 12	Dec. 9	Dec. 30	Nov. 29	Dec. 16
Saint Louis, Mo	38 38	90 12	Nov. 14	Nov. 4	Oct. 27	Oct. 14	Dec. 7	Nov. 15	Nov. 5	Dec. 1	Nov. 28	Nov. 5	Nov 19	Nov. 28	Dec. 16
Delaware Breakwater, Del	38 48	75 10	....	....	....	....	....	....	....	....	....	Nov. 25	Nov. 24	Nov. 28	Dec. 17
Pike's Peak, Colo	38 50	105 2	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)	(3)
Washington City	38 54	77 2	Nov. 28	Nov. 16	Oct. 31	Jan. 18	Dec. 15	Nov. 30	Nov. 9	Dec. 8	Nov. 6	Nov. 13	Dec. 15	Nov. 26	Dec. 17
Cape May, N. J	38 56	74 58	(2)	(2)	(2)	(2)	Dec. 15	Oct. 15	Jan. 8	Jan. 31	Nov. 4	Dec. 12	Dec. 15	Nov. 28	Nov. 2
Cincinnati, Ohio	39 6	84 30	Nov. 22	Nov. 12	Oct. 28	Nov. 20	Oct 30	Nov. 8	Nov. 28	Oct. 27	Nov. 2	Oct. 17	Nov. 3	Nov. 18	Dec. 14
Baltimore, Md	39 18	76 37	Nov. 29	Nov. 29	Nov. 13	Nov. 13	Oct. 31	Oct. 15	Jan. 4	Dec. 5	Nov. 5	Nov. 13	Oct. 24	Nov. 26	Dec. 17
Leavenworth, Kans	39 19	94 57	Nov. 23	Nov. 15	Oct. 26	Oct. 30	Oct. 24	Nov. 13	Nov. 7	Nov. 30	Nov. 27	Nov. 14	Nov. 1	Nov. 16	Oct. 24
Atlantic City, N. J	39 22	74 25	....	....	....	Nov. 29	Oct. 31	Oct. 15	Jan. 2	Dec. 21	Nov. 4	Nov. 18	Dec. 15	Nov. 29	Dec. 16
Denver, Colo	39 45	105 0	(2)	Sept. 24	Oct. 16	Nov. 17	Oct. 28	Nov. 1	Oct. 15	Oct. 24	Oct. 30	Sept. 25	Oct. 31	Oct. 11	Oct. 10
Barnegat City, N. J	39 46	74 6	....	....	....	Dec. 20	Oct. 31	Oct. 15	Jan. 2	Nov. 7	Nov. 6	Nov. 13	Nov. 26	Nov. 26	Dec. 16
Indianapolis, Ind	39 46	86 10	Nov. 19	Nov. 14	Oct. 27	Oct. 30	Nov. 16	Nov. 14	Nov. 5	Oct. 22	Nov. 17	Oct. 17	Nov. 19	Nov. 18	Dec. 14
Springfield, Ill	39 48	89 39	....	....	....	....	....	....	....	....	Nov. 18	Oct. 17	Nov. 3	Nov. 13	Dec. 16
Philadelphia, Pa	39 57	75 9	(2)	Nov. 29	Oct. 28	Dec. 1	Oct. 31	Oct. 15	Nov. 29	Dec. 5	Oct. 24	Nov. 24	Nov. 23	Nov. 26	Dec. 19
Columbus, Ohio	39 58	83 0	....	....	....	....	....	....	....	Oct. 31	Oct. 2	Nov. 6	Nov. 19	Nov. 26	Dec. 15
Keokuk, Iowa	40 22	91 26	Nov. 22	Nov. 14	Oct. 27	Nov. 19	Nov. 13	Nov. 14	Nov. 5	Oct. 26	Nov. 18	Oct. 19	Nov. 3	Nov. 25	Oct. 24
Sandy Hook, N. J	40 28	74 0	....	....	....	Jan. 13	Dec. 1	Dec. 1	Nov. 1	Dec. 5	Nov. 5	Dec. 20	Dec. 15	Nov. 27	Dec. 19
Pittsburg, Pa	40 32	80 2	Oct. 11	Nov. 27	Oct. 20	Oct. 31	Oct. 30	Oct. 15	Nov. 29	Oct. 31	Oct. 24	Oct. 19	Nov. 4	Nov. 13	Nov. 14
New York City	40 43	74 0	Nov. 16	Nov. 16	Oct. 28	Nov. 20	Oct. 31	Oct. 15	Jan. 4	Nov. 6	Nov. 5	Nov. 24	Nov. 23	Nov. 17	Dec. 16
Cheyenne, Wyo	41 8	104 48	Oct. 8	Sept. 24	Oct. 15	Oct. 29	Sept. 20	Oct. 30	Oct. 13	Sept. 9	Oct. 15	Oct. 10	Sept. 6	Oct. 6	Oct. 8
North Platte, Nebr	41 8	100 45	....	....	....	Oct. 29	Oct. 29	Nov. 12	Oct. 28	Oct. 21	Oct. 30	Oct. 15	Nov. 10	Nov. 11	Oct. 10
Block Island, R. I	41 10	71 36	....	....	....	....	....	....	....	....	....	Nov. 25	Dec 15	Nov. 18	Nov. 16
Omaha, Nebr	41 16	95 56	Nov. 18	Nov. 12	Dec. 3	Nov. 18	Oct. 29	Nov. 1	Nov. 4	Oct. 26	Nov. 1	Oct. 15	Sept. 16	Nov. 11	Dec 16
New Haven, Conn	41 18	72 56	....	(2)	Nov. 13	Nov. 15	Oct. 31	Oct. 15	Nov. 22	Nov. 1	Oct. 24	Nov. 24	Nov. 15	Nov. 17	Dec. 5
New London, Conn	41 21	72 5	Nov. 10	Nov. 17	Nov. 15	Nov. 20	Nov. 1	Oct. 15	Nov. 5	Nov. 6	Nov. 6	Nov. 25	Nov. 23	Nov. 17	Dec. 16
Sandusky, Ohio	41 25	82 40	....	....	....	....	....	....	Nov. 5	Oct. 27	Nov. 2	Nov. 6	Nov. 3	Nov. 13	Dec. 15
Cleveland, Ohio	41 30	81 42	Nov. 6	Nov. 15	Oct. 21	Oct. 31	Nov. 1	Oct. 7	Nov. 3	Oct. 27	Oct. 23	Oct. 17	Nov. 3	Nov. 13	Nov. 10
Davenport, Iowa	41 30	90 38	....	Nov. 14	Oct. 22	Oct. 30	Oct. 26	Nov. 6	Nov. 1	Oct. 26	Nov. 1	Oct. 16	Nov 11	Nov. 25	Oct. 24
Des Moines, Iowa	41 35	93 37	....	....	....	....	....	....	....	Oct. 26	Nov. 17	Oct. 16	Nov. 10	Nov. 12	Oct. 24
Toledo, Ohio	41 40	83 34	Nov. 6	Nov. 7	Oct. 20	Oct. 29	Oct. 30	Oct. 25	Nov. 3	Oct. 27	Oct. 31	Oct. 17	Nov. 8	Nov. 13	Nov. 15
Chicago, Ill	41 52	87 38	Nov. 22	Oct. 13	Oct. 20	Oct. 30	Oct. 15	Oct. 14	Nov. 2	Oct. 22	Nov. 2	Oct. 16	Nov. 3	Nov. 13	Dec. 16
Provincetown, Mass	42 3	70 11	....	....	....	....	....	....	....	....	....	....	....	....	Nov. 16
Erie, Pa	42 7	80 5	....	....	Oct. 6	Oct. 30	Oct. 12	Oct. 15	Nov. 8	Oct. 27	Oct. 24	Oct. 17	Nov. 3	Nov. 13	Nov. 1
Detroit, Mich	42 20	83 3	Oct. 27	Sept. 7	Oct. 20	Oct. 31	Oct. 11	Sept. 26	Nov. 5	Oct. 27	Oct. 24	Oct. 17	Nov. 4	Nov. 13	Nov. 15
Boston, Mass	42 21	71 4	Nov. 10	Nov. 23	Nov. 10	Nov. 20	Nov. 4	Nov. 19	Nov. 6	Nov. 7	Nov. 3	Nov. 15	Nov. 15	Nov. 17	Dec. 2
Dubuque, Iowa	42 30	90 44	....	....	Oct. 26	Nov. 19	Oct. 26	Nov. 2	Nov. 1	Oct. 17	Nov. 1	Oct. 16	Nov. 3	Nov. 22	Oct. 13
Albany, N. Y	42 39	73 45	....	....	....	Oct. 13	Oct. 31	Oct. 11	Nov. 6	Nov. 6	Nov. 3	Oct. 30	Nov. 20	Nov. 14	Nov. 12
Buffalo, N. Y	42 53	78 53	Nov. 15	Nov. 15	Oct. 20	Oct. 13	Oct. 17	Oct. 26	Nov. 5	Oct. 31	Oct. 24	Oct. 17	Nov. 4	Nov. 18	Nov. 1
Yankton, Dak	42 54	97 28	....	....	Dec. 5	Oct. 28	Oct. 29	Nov. 18	Oct. 28	Oct. 27	Nov. 27	Oct. 15	Nov. 18	Nov. 11	Dec. 22
Port Huron, Mich	43 0	82 26	....	....	....	(2)	Oct. 16	Oct. 7	Nov. 5	Oct. 27	Oct. 23	Oct. 17	Nov. 5	Nov. 17	Nov. 14
Milwaukee, Wis	43 2	87 54	Nov. 10	Nov. 14	Oct. 27	Oct. 30	Oct. 26	Oct. 24	Nov. 1	Oct. 26	Nov. 1	Oct. 17	Nov. 8	Nov. 18	Dec. 14
Grand Haven, Mich	43 5	86 18	Oct. 27	Nov. 13	Oct. 29	Oct. 30	Oct. 11	Oct. 4	Nov. 1	Oct. 26	Oct. 23	Oct. 17	Nov. 8	Nov. 13	Nov. 18

[1] No snow observed.

[2] No reliable record.

[3] Snow every month.

Table showing the first snowfall at stations of the Signal Service, United States Army, east of the Rocky Mountains, &c.—Continued.

Stations.	Latitude.	Longitude.	WINTER OF—												
			1871–'72.	1872–'73.	1873–'74.	1874–'75.	1875–'76.	1876–'77.	1877–'78.	1878–'79.	1879–'80.	1880–'81.	1881–'82.	1882–'83.	1883–'84.
	° ′	° ′													
Rochester, N. Y	43 8	77 42	Nov. 29	Nov. 19	Nov. 1	Oct. 13	Nov. 10	Oct. 5	Nov. 5	Nov. 2	Oct. 24	Sept. 14	Nov. 4	Nov. 13	Nov. 2
Oswego, N. Y	43 29	76 35	Nov. 6	Nov. 16	Oct. 29	Oct. 12	Sept. 19	Oct. 8	Nov. 9	Nov. 5	Oct. 24	Oct. 18	Nov. 4	Nov. 13	Oct. 31
Portland, Me	43 39	70 15	Nov. 10	Nov. 3	Nov. 12	Nov. 20	Nov. 1	Oct. 15	Oct. 22	Nov. 4	Oct. 24	Nov. 15	Oct. 5	Nov. 8	Nov. 14
La Crosse, Wis	43 49	91 15	......	Nov. 4	Oct. 22	Oct. 30	Oct. 11	Nov. 6	Nov. 1	Oct. 17	Nov. 1	Oct. 16	Nov. 2	Nov. 12	Oct. 13
Mount Washington, N. H	44 16	71 18	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	Sept. 9
Huron, Dak	44 21	98 9	......	......	......	......	......	......	......	......	......	......	Oct. 12	Nov. 1	Oct. 20
Deadwood, Dak	44 23	103 43	......	......	......	......	......	......	......	Sept. 8	Sept. 29	Oct. 9	Sept. 5	Oct. 12	Oct. 10
Fort Bennett, Dak	44 43	100 39	......	......	......	......	......	......	......	......	......	Oct. 26	Oct. 22	Nov. 1	Oct. 20
Eastport, Me	44 54	66 59	......	......	Nov. 10	Nov. 20	Nov. 1	Oct. 15	Oct. 22	Nov. 4	Oct. 24	Nov. 15	Oct. 5	Nov. 20	Nov. 14
Saint Paul, Minn	44 58	93 3	Oct. 10	Nov. 4	Oct. 22	Oct. 29	Oct. 25	Oct. 4	Nov. 2	Oct. 17	Nov. 1	Oct. 16	Nov. 2	Nov. 12	Sept. 28
Alpena, Mich	45 5	83 30	......	......	......	Oct. 14	Sept. 22	Aug. 21	Sept. 21	Sept. 22	Sept. 10	Sept. 22	Oct. 2	Nov. 13	Nov. 13
Fort Custer, Mont	45 42	107 34	......	......	......	......	......	......	......	......	......	Oct. 9	Sept. 30	Oct. 31	Oct. 9
Mackinaw City, Mich	45 47	84 39	......	......	......	......	......	......	......	......	......	......	......	Nov. 3	Oct. 21
Escanaba, Mich	45 48	87 5	Oct. 26	Oct. 13	Oct. 21	Oct. 10	Oct. 10	Oct. 4	Oct 4	Oct. 18	Oct. 23	Oct. 17	Nov. 18	Nov. 13	Oct. 22
Helena, Mont	46 31	112 4	......	......	......	......	......	......	......	......	......	Oct. 9	Oct. 11	Sept. 28	Oct. 9
Marquette, Mich	46 34	87 24	Oct. 27	Oct. 10	Oct. 2	Oct. 29	Oct 3	Sept 29	Sept. 1	Sept. 21	Sept. 24	Oct. 17	Oct. 9	Oct. 29	Oct. 19
Bismarck, Dak	46 47	100 38	......	......	......	Oct. 28	Oct 10	Nov. 2	Oct. 4	Oct. 8	Oct. 22	Oct. 15	Oct. 14	Oct. 11	Oct. 12
Duluth, Minn	46 48	92 6	Oct. 26	Nov. 7	Oct. 19	Oct. 29	Oct. 9	Oct. 3	Oct. 30	Oct. 17	Oct. 30	Oct 16	Oct. 19	Oct. 29	Oct. 22
Moorhead, Minn	46 52	96 44	......	Sept. 25	Oct. 25	Nov. 7	Oct. 14	Oct. 3	Nov. 1	Oct. 16	Oct. 30	Oct. 15	Oct. 14	Oct. 17	Oct. 13
Fort Shaw, Mont	47 31	111 48	......	......	......	......	......	......	......	......	......	Oct. 6	Sept. 28	Sept. 28	Aug. 21
Fort Benton, Mont	47 50	110 40	......	......	......	......	......	......	......	......	......	Oct. 14	Oct. 10	Oct. 2	Oct. 9
Fort Buford, Dak	48 0	103 56	......	......	......	......	......	......	......	......	Nov. 29	Oct. 9	Oct. 11	Sept. 30	Oct. 11
Poplar River, Mont	48 8	105 10	......	......	......	......	......	......	......	......	......	......	......	Sept. 30	Oct. 30
Fort Assinaboine, Mont	48 32	109 42	......	......	......	......	......	......	......	......	......	Oct. 9	Sept. 26	Sept. 28	Oct. 9
Saint Vincent, Minn	48 56	97 14	......	......	Sept. 28	Oct. 28	Sept. 19	Oct. 3	Oct. 14	Sept. 20	Oct. 22	Oct. 15	Oct. 12	Oct. 15	Oct. 10

[1] Snow every month.

APPENDIX 71.

Table showing the last snowfall at stations of the Signal Service, United States Army, east of the Rocky Mountains, for each winter from the commencement of observations to the winter of 1883-'84.

Stations.	Latitude.	Longitude.	WINTER OF—												
			1871-'72.	1872-'73.	1873-'74.	1874-'75.	1875-'76.	1876-'77.	1877-'78.	1678-'79.	1879-'80.	1880-'81.	1881-'82.	1882-'83.	1883-'84.
	° ′	° ′													
Key West, Fla	24 34	81 49	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Brownsville, Tex	25 53	97 26	....	....	....	....	(1)	(1)	(1)	(1)	Dec. 25	Dec. 31	(1)	(1)	(1)
Rio Grande City, Tex	26 23	98 48	....	....	....	....	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Indianola, Tex	28 32	96 31	(1)	(1)	Jan. 5	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 24	(1)	Feb. 18	(1)
Sanford, Fla	28 48	81 23	....	....	....	....	....	....	....	....	....	....	....	....	(1)
Cedar Keys, Fla	29 8	83 2	....	....	....	....	....	....	....	....	(1)	(1)	(1)	(1)	(1)
Galveston, Tex	29 18	94 47	(1)	(1)	Jan. 5	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 23	(1)	(1)	(1)
New Orleans, La	29 58	90 4	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 1	Dec. 26	Jan. 5	Jan 24	Dec. 25	(1)	(1)
Jacksonville, Fla	30 20	81 39	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Pensacola, Fla	30 25	87 13	....	....	....	....	....	....	....	....	(1)	(1)	(1)	(1)	(1)
Fort Davis, Tex	30 38	103 56	....	....	....	....	....	....	....	Feb. 6	Mar. 15	Mar. 20	Apr. 13	Mar. 7	Apr. 20
Mobile, Ala	30 41	88 2	Feb. 3	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 4	(1)	Jan. 24	(1)	Jan. 9	(1)
Fort Stockton, Tex	30 53	102 53	....	....	....	....	....	Feb. 28	Jan. 6	Jan. 8	Feb. 2	Jan. 9	Feb. 3	(1)	Jan. 23
Fort Concho, Tex	31 25	100 24	....	....	....	....	....	(2)	Jan. 7	Feb. 6	Mar. 15	Jan. 9	(1)	Feb. 5	Apr. 20
Palestine, Tex	31 45	95 40	....	....	....	Mar. 6	Mar. 20	Dec. 28	Jan. 3	Jan. 3	Feb. 2	Jan. 9	(1)	Feb. 17	Feb. 29
El Paso, Tex	31 47	106 30	....	....	....	....	....	....	....	Jan. 8	Mar. 15	Feb. 7	Jan. 11	Feb. 17	Jan. 17
Savannah, Ga	32 5	81 5	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)
Vicksburg, Miss	32 22	90 53	Mar. 1	Jan. 28	Mar. 23	Mar. 7	Mar. 20	Jan. 1	Feb. 10	Jan. 9	Feb 2	Jan. 10	(1)	(1)	Jan. 8
Montgomery, Ala	32 23	86 18	....	(1)	(1)	Dec. 31	(1)	Jan. 1	(1)	Jan. 5	(1)	Jan. 24	(1)	Jan. 9	Jan. 24
Shreveport, La	32 30	93 40	Feb. 4	Jan. 28	Jan. 16	Mar. 16	(1)	Dec. 31	Jan. 3	Jan. 8	Dec. 25	Jan. 20	Jan. 29	Jan. 20	Jan. 7
Charleston, S. C	32 47	79 56	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	(1)	Jan. 30	(1)	(1)
Augusta, Ga	33 28	81 54	Jan. 25	Dec. 11	Feb. 8	(1)	Mar. 19	Jan. 1	Jan. 8	Feb. 17	Mar. 12	Jan. 14	Jan. 30	Jan. 9	Jan. 7
Atlanta, Ga	33 45	84 23	....	....	....	....	....	....	....	Dec. 27	Feb. 2	Mar. 29	Jan. 30	Jan. 9	Mar. 2
Smithville, N. C	33 55	78 1	....	....	....	....	(1)	(1)	(1)	(1)	(1)	Jan. 24	(1)	(1)	Jan. 5
Wilmington, N. C	34 14	77 57	Mar. 6	Dec. 27	(1)	(1)	(1)	(1)	Feb. 3	Jan. 19	Nov. 20	Jan. 24	Jan. 30	Mar. 22	Jan. 17
Fort Sill, Ind. T	34 40	98 23	....	....	....	....	(2)	(2)	Feb. 8	Feb. 14	Mar. 15	Feb. 18	Mar. 9	Feb. 3	Mar. 7
Fort Macon, N. C	34 42	76 40	....	....	....	....	....	....	....	(1)	(1)	Jan. 25	Jan. 1	Mar. 22	Jan. 17
Little Rock, Ark	34 45	92 6	....	....	....	....	....	....	....	....	Feb. 2	Mar. 21	Jan. 30	Feb. 17	Feb. 27
Chattanooga, Tenn	35 4	85 15	....	....	....	....	....	....	....	Feb. 16	Apr. 8	Apr. 4	Jan. 31	Mar. 21	Mar. 4
Memphis, Tenn	35 9	90 3	Mar. 22	Mar. 25	Apr. 9	Mar. 7	Mar. 19	Mar. 25	Feb. 3	Feb. 5	Feb. 2	Mar. 19	Jan. 31	Mar. 21	Mar. 4
Charlotte, N. C	35 13	80 51	....	....	....	....	....	....	....	Feb. 14	Feb. 2	Apr. 1	Jan. 31	Mar. 26	Mar. 1
Hatteras, N. C	35 15	75 40	....	....	....	....	Mar. 22	Dec. 1	Dec. 27	Feb. 1	Jan. 19	Jan. 24	(1)	Mar. 22	Jan. 17
Fort Smith, Ark	35 22	94 24	....	....	....	....	....	....	....	....	....	....	....	Jan. 27	Mar. 8
Fort Elliott, Tex	35 30	100 21	....	....	....	....	....	....	....	....	....	Mar. 15	Feb. 18	Feb. 2	Feb. 27
Knoxville, Tenn	35 56	83 58	Mar. 22	Mar. 26	Apr. 29	Mar. 7	Mar. 28	Mar. 9	Feb. 11	Feb. 18	Feb. 3	Apr. 5	Feb. 4	Mar. 21	Apr. 9
Kitty Hawk, N. C	36 0	75 42	....	....	....	Apr. 18	Feb. 2	Mar. 18	Dec. 2	Feb. 20	Mar. 30	Feb. 23	Jan. 4	Mar. 22	Jan. 17

[1] No snow observed.

[2] No reliable record.

Table showing the last snowfall at stations of the Signal Service, United States Army, east of the Rocky Mountains, &c.—Continued.

Stations.	Latitude.	Longitude.	WINTER OF—												
			1871–'72.	1872–'73.	1873–'74.	1874–'75.	1875–'76.	1876–'77.	1877–'78.	1878–'79.	1879–'80.	1880–'81.	1881–'82.	1882–'83.	1883–'84.
	° ′	° ′													
Nashville, Tenn	36 10	86 47	Mar. 22	Mar 26	Feb. 25	Mar. 22	Mar. 28	Mar. 9	Feb. 10	Mar. 15	Feb. 3	Apr. 4	Feb. 21	Mar. 21	Mar. 2
Norfolk, Va	36 51	76 17	(¹)	(¹)	(¹)	Apr. 18	Mar. 20	Mar. 18	Jan. 8	Feb. 16	Jan. 13	Mar. 31	Mar. 12	Mar. 23	Mar. 5
Cape Henry, Va	36 56	76 0	....	....	....	Feb. 7	Feb. 4	Mar. 16	Jan. 18	Feb. 20	Feb. 10	Apr. 4	Jan. 4	Jan. 16	Feb. 23
Cairo, Ill	37 0	89 10	Mar. 22	Mar. 25	Apr. 9	Mar. 7	Mar. 28	Mar. 8	Feb. 10	Mar. 16	Mar. 13	Apr. 8	Jan. 31	Mar. 23	Mar. 9
Lynchburg, Va	37 25	79 9	Mar. 23	Apr. 25	Apr. 29	Apr. 17	Mar. 20	Apr. 13	Jan. 31	Feb. 17	Mar. 12	Mar. 30	Mar. 15	Apr. 2	Apr. 9
Dodge City, Kans	37 45	100 0	....	....	....	Apr. 25	Apr. 13	Mar. 23	Feb. 13	Feb. 17	Apr. 7	Apr. 12	Apr. 14	Feb. 24	May 1
Chincoteague, Va	37 55	75 23	....	....	....	....	....	....	....	....	....	Apr. 4	Mar. 18	Apr. 2	Apr. 9
West Las Animas, Colo	38 4	103 12	....	....	....	....	....	....	....	....	....	....	....	Apr. 14	May 2
Louisville, Ky	38 15	85 45	Feb. 17	Feb. 23	Jan. 7	Feb. 25	Feb. 15	Feb. 14	Feb. 10	Feb. 17	Feb. 8	Feb. 28	Feb. 21	Apr. 1	Apr. 10
Saint Louis, Mo	38 38	90 12	Mar. 22	Apr. 25	Mar. 31	Apr. 12	Mar. 28	Apr. 29	Feb. 24	Mar. 16	Mar. 16	Apr. 4	Mar. 13	Apr. 1	Apr. 22
Delaware Breakwater, Del	38 48	75 10	....	....	....	....	....	....	....	....	Mar. 14	Apr. 4	Apr. 11	Mar. 31	Apr. 9
Pike's Peak, Colo	38 50	105 2	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)	(²)
Washington City	38 54	77 2	Mar. 23	Mar. 3	Apr. 29	Apr. 18	Mar. 30	Mar. 28	Feb. 15	Feb. 19	Mar. 12	Apr. 4	Apr. 23	Apr. 1	Apr. 9
Cape May, N. J	38 56	74 58	(¹)	(¹)	(¹)	Apr. 19	Mar. 20	Mar. 28	Feb. 26	Mar. 29	Mar. 28	Mar. 31	Mar. 16	Mar. 31	Mar. 5
Cincinnati, Ohio	39 6	84 30	Mar. 31	Apr. 25	Apr. 9	Apr. 24	Mar. 28	May 1	Mar. 24	Mar. 19	Mar. 25	Apr. 15	Apr. 10	May 22	Apr. 8
Baltimore, Md	39 18	76 37	(¹)	Mar. 2	Apr. 29	Apr. 18	Mar. 30	Mar. 28	Feb. 15	Apr. 5	Mar. 29	Apr. 4	Apr. 11	Mar. 31	Apr. 9
Leavenworth, Kans	39 19	94 57	Mar. 22	Apr. 16	Apr. 7	Apr. 11	Apr. 13	Apr. 28	Mar. 29	Feb. 25	Mar. 15	Apr. 12	Apr. 11	Mar. 21	Apr. 21
Atlantic City, N. J	39 22	74 25	....	....	Apr. 29	Apr. 18	Mar. 20	Mar. 28	Feb. 26	Feb. 20	Mar. 19	Apr 6	Mar. 22	Apr. 1	Apr. 7
Denver, Colo	39 45	105 0	May 1	May 8	Apr. 21	Apr. 25	May 6	Apr. 28	Apr. 9	Apr. 22	May 31	May 17	May 8	May 29	May 1
Barnegat City, N. J	39 46	74 6	....	....	Apr. 29	Apr. 13	Mar. 20	Mar. 28	Feb. 2	Apr. 4	Mar. 29	Mar. 31	Apr. 10	Apr. 1	Apr. 9
Indianapolis, Ind	39 46	86 10	(¹)	(¹)	Feb. 13	Apr. 17	Mar. 28	Apr. 30	Feb. 25	Mar. 20	Mar. 25	Apr. 4	Apr. 11	Apr. 22	Apr. 9
Springfield, Ill	39 48	89 39	....	....	....	....	....	....	....	....	Apr. 19	Apr. 12	Apr. 10	Apr. 23	Apr. 22
Philadelphia, Pa	39 57	75 9	Apr. 1	Apr. 12	Apr. 20	Apr. 19	Mar. 24	Mar. 28	Mar. 24	Apr. 18	Apr. 12	Apr. 6	Apr. 10	Mar. 30	Apr. 9
Columbus, Ohio	39 58	83 0	....	....	....	....	....	....	....	Apr. 3	Mar. 15	Apr. 5	Apr. 10	May 21	Apr. 9
Keokuk, Iowa	40 22	91 26	Mar. 30	Apr. 9	Apr. 16	Apr. 10	Mar. 28	Apr. 29	May 11	Mar. 21	Mar. 16	Apr. 12	Mar. 9	Apr. 23	Apr. 8
Sandy Hook, N. J	40 28	74 6	....	....	(¹)	Apr. 4	Apr. 18	Mar. 30	Mar. 25	Mar. 17	Mar. 14	Apr. 6	Mar. 16	Apr. 29	Mar. 6
Pittsburg, Pa	40 32	80 2	Apr. 15	Apr. 23	Apr. 28	May 2	Apr. 30	May 1	Mar. 25	Apr. 5	Apr. 11	Apr. 6	Apr. 15	Apr. 24	Apr. 9
New York City	40 43	74 0	Apr. 15	Apr. 21	Apr. 29	Apr. 24	Mar. 25	Mar. 28	Mar. 25	Mar. 17	Apr. 7	Mar. 31	Apr. 11	Apr. 29	Apr. 5
Cheyenne, Wyo	41 8	104 48	May 9	May 8	May 12	Apr. 24	May 31	Apr. 28	May 17	Apr. 23	May 30	May 17	May 22	May 28	May 13
North Platte, Nebr	41 8	100 45	....	....	....	Apr. 25	May 6	May 23	May 12	Mar. 20	June 27	Apr. 12	May 22	May 2	Apr. 11
Block Island, R. I	41 10	71 36	....	....	....	....	....	....	....	....	....	Mar. 19	Apr. 11	Mar. 30	Apr. 3
Omaha, Nebr	41 16	95 56	Apr. 15	Apr. 24	Apr. 20	May 2	Apr. 13	Apr. 29	Mar. 30	Mar. 21	Apr. 19	Apr. 4	Apr. 13	Apr. 6	Apr. 21
New Haven, Conn	41 18	72 56	....	Apr. 12	Apr. 28	Apr. 19	May 1	Mar. 28	Mar. 17	Apr. 19	May 1	Apr. 12	May 9	Apr. 29	Apr. 18
New London, Conn	41 21	72 5	Apr. 16	Apr. 22	Apr. 28	Apr. 19	May 11	Apr. 21	May 15	Apr. 19	May 1	Apr. 15	Apr. 10	Apr. 29	Apr. 3
Sandusky, Ohio	41 25	82 40	....	....	....	....	....	....	Mar. 24	Apr. 20	Apr. 10	Apr. 15	Apr. 10	(²)	Apr. 9
Cleveland, Ohio	41 30	81 42	(¹)	Apr. 25	Apr. 30	May 2	Mar. 30	May 1	Mar. 24	Apr. 5	Apr. 30	Apr. 13	Apr. 15	Mar. 27	Apr. 8
Davenport, Iowa	41 30	90 38	Apr. 15	Apr. 24	Apr. 27	Apr. 16	Mar. 28	Apr. 29	Mar. 30	Apr. 2	Mar. 18	Apr. 12	Mar. 23	Apr. 6	Apr. 8
Des Moines, Iowa	41 35	93 37	....	....	....	....	....	....	....	Mar. 22	Mar. 18	Apr. 12	Apr. 10	Apr. 23	Apr. 8
Toledo, Ohio	41 40	83 34	Apr. 15	Apr. 25	Apr. 30	May 2	Mar. 30	May 1	Mar. 24	Apr. 15	Apr. 10	Apr. 13	Apr. 11	May 21	Apr. 9
Chicago, Ill	41 52	87 38	Apr. 21	Apr. 24	May 27	May 1	Apr. 14	Mar. 25	Mar. 30	Apr. 2	Apr. 30	Apr. 13	May 23	Apr. 6	Apr. 20
Erie, Pa	42 7	80 5	....	....	Apr. 11	May 2	Apr. 30	Apr. 5	Mar. 24	Apr. 5	Apr. 10	Apr. 13	Apr. 12	Apr. 24	Apr. 17

Detroit, Mich	42 20	83 8	Apr. 15	Apr. 25	Apr. 30	May 1	Mar. 30	May 1	Mar. 30	Apr. 4	Apr. 11	Apr. 12	Apr. 10	May 21	Apr. 16
Boston, Mass	42 21	71 4	Mar. 31	May 3	Apr. 28	Apr. 19	May 5	Apr. 12	Mar. 25	Apr. 19	Apr. 24	Apr. 14	Apr. 10	Apr. 24	Apr. 9
Dubuque, Iowa	42 30	90 44	....	....	Apr. 6	May 1	Apr. 2	Apr. 29	Mar. 30	Apr. 2	Apr. 16	Apr. 12	Mar. 21	Apr. 6	Apr. 8
Albany, N. Y	42 39	73 45	....	....	Apr. 29	Apr. 18	Apr. 30	Mar. 28	Apr. 5	Apr. 19	May 1	Apr. 13	May 1	Apr. 23	Apr. 5
Buffalo, N. Y	42 53	78 53	Apr. 15	Apr. 25	Apr. 26	Apr. 17	Apr. 30	Apr. 5	Mar. 25	May 1	May 1	Apr. 13	May 2	Apr. 28	Apr. 17
Yankton, Dak	42 54	97 28	....	Apr. 23	Apr. 4	Apr. 11	Apr. 4	Apr. 28	May 11	Mar. 20	Apr. 18	Apr. 10	Apr. 13	Apr. 28	Apr. 9
Port Huron, Mich	43 0	82 26	....	....	....	Apr. 24	Apr. 30	May 1	Mar. 30	Apr. 5	Apr. 30	Apr. 11	May 2	May 22	Apr. 6
Milwaukee, Wis	43 2	87 54	Apr. 15	Apr. 21	Apr. 11	May 2	Apr. 30	Apr. 29	Mar. 31	Apr. 2	Apr. 16	Apr. 12	Mar. 22	Apr. 7	Apr. 20
Grand Haven, Mich	43 5	86 18	Apr. 21	Apr. 9	Apr. 11	May 1	Mar. 30	May 1	Mar. 30	Apr. 3	Apr. 10	Apr. 13	Apr. 20	Apr. 22	Apr. 16
Rochester, N. Y	43 8	77 42	Apr. 15	Apr. 17	May 2	May 2	Apr. 30	Apr. 5	May 12	May 2	Apr. 12	Apr. 13	Apr. 12	Apr. 28	May 16
Oswego, N. Y	43 29	76 35	Apr. 23	Apr. 20	May 2	May 2	Apr. 30	Apr. 21	Mar. 26	Apr. 11	Apr. 30	Apr. 13	Apr. 11	Apr. 28	May 16
Portland, Me	43 39	70 15	Apr. 4	Apr. 13	Apr 30	Apr. 14	Apr. 19	Apr. 12	Apr. 1	Apr. 19	Apr. 17	Apr. 16	May 15	Apr. 8	May 10
La Crosse, Wis	43 49	91 15	....	Apr. 24	Apr. 20	May 1	Apr. 3	Apr. 29	May 4	Apr. 2	Apr. 16	Apr. 12	Mar. 21	Apr. 21	Apr. 15
Mount Washington, N. H	44 16	71 18	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	(2)	May 30
Huron, Dak	44 21	98 9	....	....	....	....	....	....	....	....	....	....	May 21	May 2	Apr. 8
Deadwood, Dak	44 23	103 43	....	....	....	....	....	....	....	May 3	May 23	May 17	May 22	May 29	May 12
Fort Bennett, Dak	44 43	100 39	....	....	....	....	....	....	....	....	....	Apr. 7	Apr. 12	May 4	Apr. 15
Eastport, Me	44 54	66 59	....	May 3	Apr. 30	Apr. 21	May 12	Apr. 12	Apr. 7	Apr. 19	Apr. 17	Apr. 16	May 15	May 15	May 12
Saint Paul, Minn	44 58	93 3	May 1	Mar. 28	Apr. 14	Apr. 29	May 3	Apr. 9	Mar. 31	Apr. 2	Apr. 20	Apr. 11	Mar. 21	Apr. 22	Apr. 9
Alpena, Mich	45 5	83 30	....	....	....	Apr. 21	Apr. 18	Apr. 27	June 8	June 7	June 3	June 11	May 23	May 21	May 15
Fort Custer, Mont	45 42	107 34	....	....	....	....	....	....	....	....	....	Apr. 11	May 20	(1)	Apr. 30
Mackinaw City, Mich	45 47	84 39	....	....	....	....	....	....	....	....	....	....	....	Apr. 26	Apr. 16
Escanaba, Mich	45 48	87 5	Apr. 24	Apr. 24	Apr. 20	May 5	May 3	May 3	May 12	Apr. 3	Apr. 16	Apr. 5	May 16	Apr. 27	May 2
Helena, Mont	46 34	112 4	....	....	....	....	....	....	....	....	May 28	Apr. 27	May 19	May 2	Apr. 27
Marquette, Mich	46 34	87 24	Apr. 21	May 12	Apr. 22	May 4	May 4	Apr. 30	May 11	May 5	Apr. 30	Apr. 29	May 22	May 20	May 2
Bismarck, Dak	46 47	100 38	....	....	....	Apr. 29	Apr. 9	Apr. 23	May 11	Apr. 2	Apr. 25	Apr. 11	May 20	Apr. 22	Apr. 28
Duluth, Minn	46 48	92 6	May 10	Apr. 9	Apr. 21	May 1	May 3	Apr. 5	Mar. 26	Apr. 2	Apr. 19	Apr. 14	May 22	May 6	Apr. 27
Moorhead, Minn	46 52	96 44	May 1	Apr. 24	Apr. 6	Apr. 29	June 3	Apr. 4	May 10	Apr. 2	Apr. 25	Apr. 14	May 21	Apr. 15	May 1
Fort Shaw, Mont	47 31	111 48	....	....	....	....	....	....	....	....	Apr. 24	May 23	May 20	May 1	Apr. 26
Fort Benton, Mont	47 50	110 40	....	....	....	....	....	....	....	....	Apr. 23	Apr. 22	Apr. 25	May 5	Apr. 27
Fort Buford, Dak	48 0	103 56	....	....	....	....	....	....	....	Mar. 21	Apr. 14	Apr. 10	May 22	Apr. 4	Apr. 30
Poplar River, Mont	48 8	105 10	....	....	....	....	....	....	....	....	....	....	....	Apr. 4	Apr. 29
Fort Assinaboine, Mont	48 32	109 42	....	....	....	....	....	....	....	....	Apr. 16	Apr. 11	May 19	Apr. 4	Apr. 27
Saint Vincent, Minn	48 56	97 14	....	May 8	Apr. 27	May 4	Apr. 30	June 8	May 10	May 5	Apr. 25	Apr. 2	May 21	Apr. 30	Apr. 9

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[1] No reliable record.

[2] Snow every month in the year.

[3] Station temporarily closed.

APPENDIX 72.

Table showing the quadrants from which the winds most likely to be followed by rain or each month

[Computed from observations taken during a period of

Stations.	January.	February.	March.	April.	May.
NEW ENGLAND.					
Eastport, Me	E. to S.	SE. to SW.	E. to S.	N. to E.	S. to W.
Portland, Me	NW. to NE.	S. to W.	E. to S.	SE. to SW.	SE. to SW.
Burlington, Vt.[1]	E. to S.	S. to W.	SE. to SW.	S. to W.	S. to W.
Boston, Mass	SW. to NW.	SE. to SW.	NE. to SE.	E. to S.	SE. to SW.
Provincetown, Mass	SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.
Springfield, Mass.[2]	NW. to NE.	NW. to NE.	NW. to NE.	SE. to SW.	S. to W.
Thatcher's Island, Mass.[3]	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
Wood's Holl, Mass.[4]	SE. to SW.	SE. to SW.	E. to S.	NE. to SE.	SE. to SW.
Block Island, R. I	NE. to SE.	SE. to SW.	E. to S.	E. to S.	S. to W.
Newport, R. I.[5]	S. to W.	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.
New Haven, Conn	NW. to NE.	NW. to NE.	E. to S.	SE. to SW.	SE. to SW.
New London, Conn	N. to E.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
MIDDLE ATLANTIC STATES.					
Albany, N. Y	SE. to SW.	S. to W.	S. to W.	W. to N.	S. to W.
New York City	NE. to SE.	NE. to SE.	NE. to SE.	E. to S.	SE. to SW.
Philadelphia, Pa	N. to E.	NE. to SE.	E. to S.	SE. to SW.	SE. to SW.
Williamsport, Pa.[1]	NE. to SE.	E. to S.	E. to S.	S. to W.	E. to S.
Atlantic City, N. J	N. to E.	E. to S.	E. to S.	E. to S.	SE. to SW.
Barnegat City, N. J	S. to W.	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.
Cape May, N. J	N. to E.	E. to S.	E. to S.	E. to S.	E. to S.
Sandy Hook, N. J	N. to E.	SE. to SW.	E. to S.	E. to S.	SE. to SW.
Delaware Breakwater, Del	NW. to NE.	SE. to SW.	NE. to SE.	NE. to SE.	SE. to SW.
Baltimore, Md	NE. to SE.	NE. to SE.	NE. to SE.	E. to S.	SE. to SW.
Washington City	NE. to SE.	E. to S.	E. to S.	E. to S.	SE. to SW.
Cape Henry, Va	N. to E.	SE. to SW.	E. to S.	E. to S.	SE. to SW.
Chincoteague, Va	N. to E.	E. to S.	E. to S.	E. to S.	SE. to SW.
Lynchburg, Va	N. to E.	S. to W.	E. to S.	S. to W.	S. to W.
Norfolk, Va	N. to E.	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.
SOUTH ATLANTIC STATES.					
Cape Lookout, N. C.[6]	SE. to SW.	SW. to NW.	NE. to SE.	S. to W.	NE. to SE.
Charlotte, N. C	NE. to SE.	E. to S.	SE. to SW.	SE. to SW.	SE. to SW.
Hatteras, N. C	NW. to NE.	NW. to NE.	SE. to SW.	SE. to SW.	SE. to SW.
Kitty Hawk, N. C	N. to E.	SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.
Macon, Fort, N. C	NW. to NE.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
Portsmouth, N. C	N. to E.	SE. to SW.	SE. to SW.	S. to W.	E. to S.
Smithville, N. C	N. to E.	N. to E.	SE. to SW.	S. to W.	SE. to SW.
Wilmington, N. C	N. to E.	NE. to SE.	SE. to SW.	S. to W.	SE. to SW.
Charleston, S. C	NW. to NE.	N. to E.	S. to W.	SE. to SW.	SE. to SW.
Augusta, Ga	NE. to SE.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
Savannah, Ga	SE. to SW.	NE. to SE.	SE. to SW.	SE. to SW.	N. to E.
Jacksonville, Fla	NW. to NE.	E. to S.	SE. to SW.	SE. to SW.	NE. to SE.
FLORIDA PENINSULA.					
Cedar Keys, Fla	S. to W.	E. to S.	E. to S.	S. to W.	E. to S.
Key West, Fla	NE. to SE.	NE. to SE.	N. to E.	NE. to SE.	NE. to SE.
Punta Rasa, Fla.[1]	NE. to SE.	E. to S.	SE. to SW.	S. to W.	S. to W.
Sanford, Fla	....	....	([7])	Variable.	S. to W.
EASTERN GULF STATES.					
Atlanta, Ga	NE. to SE.	E. to S.	S. to W.	SE. to SW.	E. to S.
Pensacola, Fla	NE. to SE.	E. to S.	SE. to SW.	SE. to SW.	E. to S.
Mobile, Ala	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.	SE. to SW.
Montgomery, Ala	E. to S.	E. to S.	SE. to SW.	SE. to SW.	E. to S.
Starkville, Miss.[1]	SE. to SW.	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.
Vicksburg, Miss	SE. to SW.	E. to S.	E. to S.	E. to S.	SE. to SW.
New Orleans, La	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.

[1] Station closed June 15, 1883.

[2] Station closed December 31, 1882.

[3] Changed to third class station, May 31, 1883.

[4] Station closed January 31, 1882.

APPENDIX 72.

snow are observed to blow at stations of the Signal Service, United States Army, during of the year.

from one to thirteen years—1871 to 1883 inclusive.]

June.	July.	August.	September.	October.	November.	December.
S. to W.	S. to W.	SE. to SW.	E. to S.	E. to S.	SE. to SW.	SE. to SW.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	W. to N.
S. to W.	SE. to SW.	SE. to SW.	S. to W.	S. to W.	E. to S.	E. to S.
S. to W.	S. to W.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	SE. to SW.
SE. to SW.	SE. to SW.	Variable.	NE. to SE.	SE. to SW.	SE. to SW.	SE. to SW.
S. to W.	SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	NW. to NE.
S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	Variable.
SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.	NE. to SE.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.	NE. to SE.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	N. to E.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	NW. to NE.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	SE. to SW.	NW. to NE.
S. to W.	S. to W	S. to W.	SE. to SW.	SE. to SW.	S. to W.	SE. to SW.
SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	NE. to SE.	NE. to SE.	NE. to SE.
S. to W.	S. to W.	S. to W.	S. to W.	SE. to SW.	S. to W.	SE. to SW.
SW. to NW.	Variable.	NE. to SE.	Variable.	E. to S.	NE. to SE.	E. to S.
S. to W.	SE. to SW.	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.	SE. to SW.
S. to W.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	SE. to SW.	E. to S.
E. to S.	E. to S.	E. to S.	NE. to SE.	E. to S.	E. to S.	N. to E.
SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	NE. to SE.	E. to S.	NE. to SE.
SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	NE. to SE.	NW. to NE.	SE. to SW.
SE. to SW.	S. to W.	SE. to SW.	E. to S.	E. to S.	E. to S.	NE. to SE.
SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	E. to S.	S. to W. NW. to NE.
SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	SE. to SW.	N. to E.	SE. to SW.
SE. to SW.	SE. to SW.	Variable.	E. to S.	SE. to SW.	N. to E.	SE. to SW.
S. to W.	S. to W.	SE. to SW.	NE. to SE.	SE. to SW.	NE. to SE.	S. to W.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	N. to E.	SE. to SW.
SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	NE. to SE.	NE. to SE.	Variable.
S. to W.	SE. to SW.	SE. to SW.	NE. to SE.	NE. to SE.	NE. to SE.	SE. to SW.
SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	NE. to SE.	NE. to SE.	S. to W.
S. to W.	S. to W.	SE. to SW.	NE. to SE.	N. to E.	N. to E.	N. to E.
SE. to SW.	SW. to NW	SE. to SW.	NW. to NE.	NE. to SE.	N. to E.	Variable.
S. to W.	SE. to SW.	SE. to SW.	NE. to SE.	NW. to NE.	NE. to SE.	SE. to SW.
SE. to SW.	S. to W.	SE. to SW.	NE. to SE.	N. to E.	N. to E.	N. to E.
SE. to SW.	S. to W.	SE. to SW	NE. to SE.	NE. to SE.	N. to E.	N. to E. S. to W.
SE. to SW.	S. to W.	SE. to SW.	N. to E.	N. to E.	N. to E.	SE. to SW,
SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	NE. to SE.	NE. to SE.	S. to W.
SE. to SW.	S. to W.	SE. to SW.	NE. to SE.	NE. to SE.	N. to E.	SE. to SW.
SE. to SW.	S. to W.	NE. to SE.	NE. to SE.	N. to E.	N. to E.	N. to E.
S. to W.	S. to W.	S. to W.	SE. to SW.	NE. to SE.	NE. to SE.	E. to S.
NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
E. to S.	SE. to SW.	NE. to SE.	NE. to SE.	NE. to SE.	E. to S.	SE. to SW.
SE. to SW.	SE. to SW.	NE. to SE.	NE. to SE.	NW. to NE.	NW. to NE.	N. to E.
S. to W.	SW. to NW.	E. to S.	E. to S.	NE. to SE.	E. to S.	E. to S.
SE. to SW.	SW. to NW.	SE. to SW.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	E. to S.	E. to S.
SE. to SW.	S. to W.	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
SE. to SW.	SE. to SW.	SE. to SW.	Variable.	E. to S.	N. to E.	NE. to SE.
SE. to SW.	SW. to NW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
E. to S.	E. to S.	E. to S.	NE. to SE.	E. to S.	E. to S.	E. to S.

[5] Station closed March 31, 1883.

[6] Station closed December 31, 1880.

[7] Made a first-class station March 26, 1883.

Table showing the quadrants from which the winds most likely to be followed by rain

Stations.	January.	February.	March.	April.	May.
WESTERN GULF STATES.					
Port Eads, La.[1]	E. to S.	E. to S.	E. to S.	E. to S.	SE. to SW.
Shreveport, La	E. to S.	E. to S.	E. to S.	E. to S.	SE. to SW.
Fort Smith, Ark	N. to E.	NE. to SE.	Variable.	E. to S.	E. to S.
Little Rock, Ark	E. to S.	E. to S.	SE. to SW.	E. to S.	E. to S.
Fort Gibson, Ind. T.[2]	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
Boerne, Tex.[3]	E. to S.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
Corsicana, Tex.[4]	E. to S.	SE. to SW.	SE. to SW.	E. to S.	E. to S.
Decatur, Tex.[5]	NW. to NE.	E. to S.	E. to S.	SE. to SW.	NE. to SE.
Denison, Tex.[1]	NE. to SE.	SE. to SW.	SE. to SW.	E. to S.	E. to S.
Fredericksburg, Tex.[6]	N. to E.	S. to W.	E. to S.	S. to W.	SE. to SW.
Galveston, Tex	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
Indianola, Tex	N. to E.	NE. to SE.	E. to S.	E. to S.	E. to S.
Mason, Tex.[7]	N. to E.	SE. to SW.	E. to S.	NE. to SE.	E. to S.
Palestine, Tex	E. to S.	E. to S.	E. to S.	E. to S.	SE. to SW.
Pilot Point, Tex[5]	NW. to NE.	NW. to NE.	NE. to SE.	E. to S.	E. to S.
San Antonio, Tex.[6]	N. to E.	N. to E.	NE. to SE.	NE. to SE.	E. to S.
RIO GRANDE VALLEY.					
Brackettville, Tex.[9]	NE. to SE.	NE. to SE.	N. to E.	N. to E.	E. to S.
Brownsville, Tex	NW. to NE.	N. to E.	N. to E.	NE. to SE.	NE. to SE.
Castroville, Tex.[10]	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
Eagle Pass, Tex.[8]	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
Edinburg, Tex.[11]	NW. to NE.	SE. to SW.	NE. to SE.	NE. to SE.	Variable.
Laredo, Tex.[9]	N. to E.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
Rio Grande City, Tex	NE. to SE.	NW. to NE.	NE. to SE.	NE. to SE.	NE. to SE.
Uvalde, Tex	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	E. to S.
OHIO VALLEY AND TENNESSEE.					
Chattanooga, Tenn	NE. to SE.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
Knoxville, Tenn	N. to E.	S. to W.	S. to W.	SW. to NW.	SW. to NW.
Memphis, Tenn	SE. to SW.	E. to S.	NE. to SE.	SE. to SW.	SE. to SW.
Nashville, Tenn	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
Louisville, Ky	E. to S.	E. to S.	SE. to SW.	SE. to SW.	SE. to SW.
Indianapolis, Ind	SE. to SW.	E. to S.	E. to S.	SE. to SW.	SE. to SW.
Cincinnati, Ohio	SE. to SW.	E. to S.	E. to S.	SE. to SW.	SE. to SW.
Columbus, Ohio	E. to S.	SE. to SW.	SE. to SW.	S. to W.	S. to W.
Morgantown, W. Va.[1]	S. to W.	S. to W.	S. to W.	S. to W.	SE. to SW.
Pittsburg, Pa	S. to W.	S. to W.	NE. to SE.	SW. to NW.	S. to W.
LOWER LAKES.					
Buffalo, N. Y	S. to W.	S. to W.	SE. to SW.	S. to W.	SE. to SW.
Oswego, N. Y.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
Rochester, N. Y	S. to W.	S. to W.	SE. to SW.	S. to W.	SW. to NW.
Erie, Pa	S. to W.	SE. to SW.	S. to W.	S. to W.	S. to W.
Cleveland, Ohio	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
Sandusky, Ohio	S. to W.	SE. to SW.	SE. to SW.	S. to W.	S. to W.
Toledo, Ohio	S. to W.	S. to W.	S. to W.	S. to W.	S. to W.
Detroit, Mich	S. to W.	S. to W.	E. to S.	S. to W.	S. to W.
UPPER LAKES.					
Alpena, Mich	SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	E. to S.
Escanaba, Mich	W. to N.	E. to S.	NE. to SE.	E. to S.	E. to S.
Grand Haven, Mich	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
Mackinaw City, Mich	SE. to SW.	SE. to SW.	SW. to NW.	NE. to SE.	E. to S.
Marquette, Mich	SW. to NW.	W. to N.	SW. to NW.	NW. to NE.	E. to S.
Port Huron, Mich	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
Champaign, Ill.[1]	E. to S.	E. to S.	NE. to SE.	SE. to SW.	SE. to SW.
Chicago, Ill	S. to W.	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.
Milwaukee, Wis	SE. to SW.	SE. to SW.	NE. to SE.	NE. to SE.	NE. to SE.
Duluth, Minn	SW. to NW.	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.
UPPER MISSISSIPPI VALLEY.					
Saint Paul, Minn	E. to S.	NE. to SE.	E. to S.	E. to S.	E. to S.
La Crosse, Wis	SE. to SW.	E. to S.	E. to S.	E. to S.	E. to S.
Madison, Wis.[1]	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
Davenport, Iowa	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	E. to S.
Des Moines, Iowa	SE. to SW.	NE. to SE.	NE. to SE.	NE. to SE.	SE. to SW.
Dubuque, Iowa	E. to S.	E. to S.	E. to S.	NE. to SE.	SE. to SW.
Keokuk, Iowa	SE. to SW.	NE. to SE.	E. to S.	E. to S.	E. to S.
Cairo, Ill	E. to S.	E. to S.	SE. to SW.	E. to S.	SE. to SW.
Springfield, Ill	E. to S.	SE. to SW.	NE. to SE.	E. to S.	SE. to SW.
Saint Louis, Mo	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.

[1] Station closed March 31, 1883.
[2] Station closed May 13, 1882.
[3] Station closed July 28, 1880.
[4] Station closed October 31, 1881.
[5] Station closed March 31, 1881.
[6] Station closed March 25, 1883.

or snow are observed to blow at stations of the Signal Service, &c.—Continued.

June.	July.	August.	September.	October.	November.	December.
E. to S.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	E. to S.	E. to S.
SE. to SW.	E. to S.	NE. to SE.	E. to S.	SE. to SW.	E. to S.	E. to S.
S. to W.	S. to W.	NE. to SE.	N. to E.	E. to S.	E. to S.	E. to S.
S. to W.	SE. to SW.	NE. to SE.	SE. to SW.	SE. to SW.	E. to S.	NE. to SE.
E. to S.	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
E. to S.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	E. to S.	E. to S.
E. to S.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	E. to S.	E. to S.
SE. to SW.	NE. to SE.	SE. to SW.	NE. to SE.	NE. to SE.	N. to E.	NE. to SE.
SE. to SW.	E. to S.	SE. to SW.	E. to S.	E. to S.	NE. to SE.	E. to S.
E. to S.	E. to S.	E. to S.	N. to E.	E. to S.	E. to S.	E. to S.
E. to S.	SE. to SW.	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
NE. to SE.	E. to S.	E. to S.	NE. to SE.	E. to S.	N. to E.	E. to S.
E. to S.	NE. to SE.	NE. to SE.	E. to S.	NE. to SE.	NW. to NE.	NE. to SE.
SE. to SW.	SE. to SW.	S. to W.	NE. to SE.	E. to S.	E. to S.	E. to S.
SE. to SW.	E. to S.	SE. to SW.	E. to S.	E. to S.	E. to S.	NE. to SE.
NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	N. to E.	NE. to SE.
NE. to SE.	E. to S.	NE. to SE.	E. to S.	NE. to SE.	N. to E.	N. to E.
NE. to SE.	E. to S.	NE. to SE.	N. to E.	NE. to SE.	N. to E.	N. to E.
E. to S.	E. to S.	NE. to SE.	E. to S.	E. to S.	NE. to SE.	NE. to SE.
E. to S.	E. to S.	NE. to SE.	E. to S.	NE. to SE.	NW. to NE.	NE. to SE.
E. to S.	Variable.	E. to S.	Variable.	E. to S.	NW. to NE.	NW. to NE.
NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NW. to NE.	NE. to SE.
E. to S.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	W. to N.	NW. to NE.
E. to S.	E. to S.	E. to S.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
S. to W.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
S. to W.	SW. to NW.	S. to W.	SE. to SW.	SW. to NW.	SE. to SW.	S. to W.
SE. to SW.	SW. to NW.	W. to N.	SE. to SW.	E. to S.	E. to S.	NE. to SE.
S. to W.	S. to W.	SW. to NW.	SE. to SW.	SE. to SW.	E. to S.	E. to S.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	SE. to SW.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE to SW.	SE. to SW.	SE. to SW.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
S. to W.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.
SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	S. to W.	SE. to SW.	S. to W.
S. to W.	S. to W.	S. to W.	SE. to SW.	S. to W.	SE. to SW.	S. to W.
SE. to SW.	SE. to SW.	S. to W.	S. to W.	S. to W.	S. to W.	S. to W.
S. to W.	SE. to SW.	SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.
S. to W.	S. to W.	SW. to NW.	S. to W.	S. to W.	S. to W.	S. to W.
S. to W.	S. to W.	S. to W.	SE. to SW.	S. to W.	S. to W.	S. to W.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
SE. to SW.	S. to W.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
S. to W.	S. to W.	S. to W.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.
SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.
E. to S.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.	SW. to NW.	S. to W.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.	W. to N.
SE. to SW.	SE. to SW.	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
W. to N.	S. to W.	W. to N.	S. to W.	SE. to SW.	SE. to SW.	SW. to NW.
E. to S.	S. to W.	SE. to SW.	SE. to SW.	S. to W.	SW. to NW.	SW. to NW.
SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.	S. to W.
SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	SE. to SW.
SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SW. to NW.
NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.	NE. to SE.	SW. to NW.	SW. to NW.
E. to S.	SE. to SW.	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	E. to S.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	E. to S.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	E. to S.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.	E. to S.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	E. to S.	NE. to SE.
SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	E. to S
SE. to SW.	S. to W.	E. to S.	SE. to SW.	SE. to SW.	E. to S.	E. to S.
SE. to SW.	SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.

[7] Station closed April 15, 1882.

[8] Station closed June 15, 1883.

[9] Reduced to third-class station Dec. 16, 1882.

[10] Station closed March 29, 1882.

[11] Reduced to third-class station Feb. 12, 1882.

Table showing the quadrants from which the winds most likely to be followed by rain

Stations.	January.	February.	March.	April.	May.
MISSOURI VALLEY.					
Springfield, Mo.[1]	NE. to SE.	E. to S.	NE. to SE.	SE. to SW.	SE. to SW.
Leavenworth, Kans	NW. to NE.	NW. to NE.	E. to S.	E. to S.	E. to S.
Omaha, Nebr	N. to E.	NW. to NE.	E. to S.	NE. to SE.	E. to S.
Bennett, Fort, Dak	NW. to NE.	NW. to NE.	NE. to SE.	NE. to SE.	NE. to SE.
Huron, Dak	W. to N.	NW. to NE.	Variable.	NE. to SE.	NE. to SE.
Yankton, Dak	NW. to NE.	NW. to NE.	E. to S.	NE. to SE.	E. to S.
EXTREME NORTHWEST.					
Breckenridge, Minn.[2]	NW. to NE.	NE. to SE.	NE. to SE.	NE. to SE.	SE. to SW.
Moorhead, Minn	SE. to SW.	NE. to SE.	NE. to SE.	E. to S.	SE. to SW.
Saint Vincent, Minn	SE. to SW.	E. to S.	E. to S.	NE. to SE.	E. to S.
Bismarck, Dak	NW. to NE.	N. to E.	N. to E.	NE. to SE.	E. to S.
Buford, Fort, Dak	SW. to NW.	NE. to SE.	NE. to SE.	NE. to SE.	E. to S.
Stevenson, Fort, Dak.[1]	N. to E.	SW. to NW.	NE. to SE.	E. to S.	NE. to SE.
NORTHERN SLOPE.					
Assinaboine, Fort, Mont	SW. to NW.	NW. to NE.	SW. to NW.	NW. to NE.	N. to E. S. to W.
Benton, Fort, Mont	SW. to NW.	SW. to NW.	NW. to NE.	N. to E.	NE. to SE.
Billings, Mont.[3]	N. to E.	SW. to NW.	NW. to NE.	N. to E.	E. to S.
Custer, Fort, Mont	SE. to SW.	W. to N.	W. to N.	NW. to NE.	NW. to NE.
Helena, Mont	SW. to NW.	SW. to NW.	SW. to NW.	S. to W.	S. to W.
Keogh, Fort, Mont.[1]	SW. to NW.	NW. to NE.	SW. to NW.	NW. to NE.	NE. to SE.
Maginnis, Fort, Mont	W. to N.	SW. to NW.	SW. to NW.	Variable.	NE. to SE.
Poplar River, Mont	NW. to NE.	NW. to NE.	SW. to NW.	NE. to SE.	NW. to NE.
Shaw, Fort, Mont	SW. to NW.	SW. to NW.	W. to N.	W. to N.	W. to N.
Virginia City, Mont.[4]	SE. to SW.	SW. to NW.	SW. to NW.	S. to W.	SW. to NW.
Deadwood, Dak	SW. to NW.	N. to E.	Variable.	NW. to NE.	NW. to NE.
Cheyenne, Wyo	W. to N.	W. to N.	NW. to NE.	NW. to NE.	NW. to NE.
Washakie, Fort, Wyo.[1]	SW. to NW.	N. to E.	NE. to SE.	Variable.	NW. to NE.
North Platte, Nebr	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
MIDDLE SLOPE.					
Denver, Colo	NW. to NE.	NW. to NE.	N. to E.	NW. to NE.	NW. to NE.
West Las Animas, Colo	N. to E.	NE. to SE.	Variable.	E. to S.	N. to E.
Dodge City, Kans	NW. to NE.	NE. to SE.	NE. to SE.	N. to E.	E. to S.
Elliott, Fort, Tex	SE. to SW.	NW. to NE.	NW. to NE.	NE. to SE.	NE. to SE.
SOUTHERN SLOPE.					
Sill, Fort, Ind. T	NE. to SE.	Variable.	NW. to NE.	E. to S.	E. to S.
Coleman City, Tex.[5]	NW. to NE.	E. to S.	SE. to SW.	NE. to SE.	E. to S.
Concho, Fort, Tex	NW. to NE.	N. to E.	E. to S.	SE. to SW.	E. to S.
Davis, Fort, Tex	NW. to NE.	SW. to NW.	N. to E.	NW. to NE.	E. to S.
Griffin, Fort, Tex.[6]	N. to E.	NE. to SE.	N. to E.	NE. to SE.	E. to S.
Henrietta, Tex.[7]	N. to E.	E. to S.	E. to S.	E. to S.	E. to S.
Jacksboro', Tex.[1]	NW. to NE.	E. to S.	E. to S.	SE. to SW.	E. to S.
McKavett, Fort, Tex.[8]	N. to E.	SE. to SW.	E. to S.	E. to S.	NE. to SE.
Stockton, Fort, Tex	NE. to SE.	SE. to SW.	NE. to SE.	NE. to SE.	E. to S.
SOUTHERN PLATEAU.					
La Mesilla, N. Mex.[9]	Variable.	NE. to SE.	SW. to NW.	SE. to SW.	Variable.
Santa Fé, N. Mex.[1]	NE. to SE.	S. to W.	SE. to SW.	SW. to NW.	SE. to SW.
Silver City, N. Mex.[7]	S. to W.	SW. to NW.	SW. to NW.	S. to W.	SW. to NW.
Socorro, N. Mex.[10]	S. to W.	NW. to NE.	S. to W.	SE. to SW.	NE. to SE.
El Paso, Tex	NE. to SE.	W. to N.	SW. to NW.	SW. to NW.	NE. to SE.
Apache, Fort, Ariz	S. to W.	S. to W.	SE. to SW.	SW. to NW.	SE. to SW.
Burke's, Ariz.[11]	S. to W.	S. to W.	SE. to SW.	S. to W.	SE. to SW.
Florence, Ariz.[12]	S. to W.	NE. to SE.	E. to S.	SW. to NW.	SW. to NW.
Grant, Fort, Ariz	NW. to NE.	N. to E.	S. to W.	SW. to NW.	Variable.
Phœnix, Ariz.[13]	SE. to SW.	E. to S.	S. to W.	S. to W.	Variable.
Prescott, Ariz	SE. to SW.	SE. to SW.	E. to S.	SE. to SW.	E. to S.
Thomas, Fort, Ariz	W. to N.	SW. to NW.	E. to S.	W. to N.	Variable.
Tucson, Ariz.[1]	SE. to SW.	S. to W.	E. to S.	S. to W.	Variable.
Verde, Fort, Ariz.[14]	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
Wickenburg, Ariz.[12]	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	S. to W.
Yuma, Ariz	SE. to SW.	NE. to SE.	S. to W.	SW. to NW.	No precipitation.

[1] Station closed June 15, 1883.
[2] Station closed November 30, 1880.
[3] Station closed June 24, 1883.
[4] Station closed November 18, 1880.
[5] Station closed August 1, 1883.
[6] Station closed April 14, 1882.
[7] Station closed March 31, 1883.
[8] Station closed February, 1883.

or snow are observed to blow at stations of the Signal Service, &c.—Continued.

June.	July.	August.	September.	October.	November.	December.
SE. to SW.	SE. to SW.	W. to N.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
SE. to SW.	SE. to SW.	NW. to NE.	SE. to SW.	E. to S.	E. to S.	E. to S.
E. to S.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	NW. to NE.	NW. to NE.
NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	W. to N.	NE. to SE.
NE. to SE.	NE. to SE.	NE. to SE.	NW. to NE.	NE. to SE.	NW. to NE.	NE. to SE.
E. to S.	E. to S.	E. to S.	E. to S.	E. to S.	W. to N.	NW. to NE.
SE. to SW.	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.	SE. to SW.
SE. to SW.	Variable.	SE. to SW.	NW. to NE.	E. to S.	NW. to NE.	NW. to NE.
E. to S.	SE. to SW.	E. to S.	SE. to SW.	{E. to S. NW. to NE.}	SE. to SW.	SE. to SW.
E. to S.[9]	E. to S.	E. to S.	NW. to NE.	NE. to SE.	NW. to NE.	NE. to SE.
NE. to SE.	NE. to SE.	NE. to SE.	SW. to NW.	N. to E.	SW. to NW.	N. to E.
NE. to SE.	NE. to SE.	E. to S.	NE. to SE.	W. to N.	SW. to NW.	W. to N.
SW. to NW.	SW. to NW.	NE. to SE.	S. to W.	Variable.	SW. to NW.	SW. to NW.
N. to E.	SW. to NW.	NW. to NE.	SW. to NW.	SW. to NW.	SW. to NW.	Variable.
NE. to SE.	(3)	(3)	(3)	(3)	(3)	(3)
SW. to NW.	W. to N	NE. to SE.	N. to E.	NW. to NE.	NW. to NE.	NW. to NE.
S. to W.	S. to W.	S. to W.	SW. to NW.	SE. to SW.	SW. to NW.	SW. to NW.
NW. to NE.	NW. to NE.	NE. to SE.	W. to N.	W. to N.	W. to N.	NW. to NE.
NW. to NE.	SE. to SW.	SW. to NW.	NW. to NE.	SW. to NW.	NW. to NE.	SW. to NW.
NE. to SE.	NW. to NE.	N. to E.	NE. to SE.	SE. to SW.	NW. to NE.	NE. to SE.
SW. to NW.	S. to W.	N. to E.	SW. to NW.	SW. to NW.	W. to N.	S. to W.
SW. to NW.	SE. to SW.	W. to N.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
N. to E.	NW. to NE.	NE. to SE.	W. to N.	NW. to NE.	S. to W.	NW. to NE.
E. to S.	E. to S.	E. to S.	NW. to NE.	NW. to NE.	W. to N.	NW. to NE.
NW. to NE.	Variable.	NE. to SE.	Variable.	SW. to NW.	SE. to SW.	S. to W.
E. to S.	NE. to SE.	E. to S.	NE. to SE.	NE. to SE.	NW. to NE.	NW. to NE.
NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.	N. to E.	NW. to NE.	NW. to NE.
E. to S.	E. to S.	NE. to SE.	NE. to SE.	NE. to SE.	Variable.	NE. to SE.
SE. to SW.	E. to S.	E. to S.	E. to S.	N. to E.	NW. to NE.	N. to E.
SE. to SW.	NE. to SE.	E. to S.	SE. to SW.	NE. to SE.	NE. to SE.	NE. to SE.
E. to S.	E. to S.	NW. to NE.	SE. to SW.	SE. to SW.	N. to E.	NW. to NE.
E. to S.	SE. to SW.	NE. to SE.	NE. to SE.	E. to S.	N. to E.	N. to E.
E. to S.	E. to S.	E. to S.	NE. to SE.	NE. to SE.	N. to E.	N. to E.
SE. to SW.	N. to E.	NE. to SE.	NW. to NE.	NE. to SE.	NW. to NE.	N. to E.
NE. to SE.	NE. to SE.	NW. to NE.	NE. to SE.	NE. to SE.	N. to E.	N. to E.
E. to S.	NE. to SE.	SE. to SW.	E. to S.	E. to S.	NE. to SE.	N. to E.
E. to S.	E. to S.	SE. to SW.	E. to S.	NE. to SE.	NE. to SE.	N. to E.
E. to S.	NE. to SE.	NE. to SE.	E. to S.	E. to S.	N. to E.	NE. to SE.
E. to S.	E. to S.	SE. to SW.	NE. to SE.	SE. to SW.	N. to E.	NW. to NE.
SE. to SW.	SE. to SW.	E. to S.	W. to N.	SE. to SW.	NE. to SE.	E. to S.
E to S.	SE. to SW.	N. to E.	SE. to SW.	E. to S.	E. to S.	SE. to SW.
W. to N.	E. to S.	SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SW. to NW.
Variable.	SE. to SW.	SE. to SW.	Variable.	SE. to SW.	E. to S.	W. to N.
NE. to SE.	NE. to SE.	NE. to SE.	N. to E.	S. to W.	NE. to SE.	SW. to NW.
NE. to SE.	S. to W.	SW. to NW.	SW. to NW.	SE. to SW.	NE. to SE.	NE. to SE.
No precipitation.	SE. to SW.	E. to S.	Variable.	Variable.	SW. to NW.	S. to W.
No precipitation.	S. to W.	S. to W.	SW. to NW.	S. to W.	Variable.	Variable.
E. to S.	SE. to SW.	E. to S.	E. to S.	S. to W.	NE. to SE.	SW. to NW.
Variable.	S. to W.	NE. to SE.	SE. to SW.	S. to W.	NE. to SE.	S. to W.
SE. to SW.	S. to W.	S. to W.	SE. to SW.	SE. to SW.	S. to W.	S. to W.
SE. to SW.	W. to N.	SE. to SW.	NE. to SE.	SW. to NW.	NW. to NE.	SW. to NW.
SW. to NW.	SE. to SW.	E. to S.	S. to W.	SE. to SW.	SE. to SW.	SW. to NW.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
NE. to SE.	S. to W.	E. to S.	S. to W.	E. to S.	S. to W.	S. to W.
S. to W.	SE. to SW.	SE. to SW.	Variable.	E. to S.	W. to N.	W. to N.

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[9] Station closed August 6, 1882.

[10] Closed May 28, 1881.

[11] Closed December, 1880.

[12] Closed April 30, 1882.

[13] Changed to a third-class station Dec. 31, 1881.

[14] Changed to a third-class station Oct. 10, 1882.

Table showing the quadrants from which the winds most likely to be followed by rain

Stations.	January.	February.	March.	April.	May.
MIDDLE PLATEAU.					
Pioche, Nev.[1]	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.
Winnemucca, Nev.[1]	S. to W.	SE. to SW.	S. to W.	SW. to NW.	S. to W.
Salt Lake City, Utah	E. to S.	E. to S.	E. to S.	NE. to SE.	SW. to NW.
NORTHERN PLATEAU.					
Missoula, Fort, Mont.[1]	NW. to NE.	S. to W.	SW. to NW.	SW. to NW.	SE. to SW.
Boise, Idaho	E. to S.	NE. to SE.	E. to S.	W. to N.	W. to N.
Eagle Rock, Idaho[1]	SW. to NW.	SE. to SW.	Variable.	S. to W.	S. to W.
Lewiston, Idaho	NE. to SE.	SE. to SW.	NE. to SE.	NE. to SE.	SW. to NW.
Umatilla, Oreg.[2]	NE. to SE.	SW. to NW.	SW. to NW.	N. to E.	SW. to NW.
Dayton, Wash. T	S. to W.	S. to W.	S. to W.	SE. to SW.	S. to W.
Spokane Falls, Wash. T	SW. to NW.	SE. to SW.	E. to S.	SE. to SW.	S. to W.
NORTH PACIFIC COAST.					
Canby, Fort, Wash. T.[3]	....	....	....	....	....
Olympia, Wash. T	SE. to SW.	SE. to SW.	S. to W.	S. to W.	S. to W.
Tatoosh Island, Wash. T.[4]	....	....	....	....	....
Portland, Oreg	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
Roseburg, Oreg	SE. to SW.	SE. to SW.	S. to W.	SW. to NW.	SW. to NW.
MIDDLE PACIFIC COAST.					
Cape Mendocino, Cal	W. to N.	SW. to NW.	NE. to SE.	NE. to SE.	SE. to SW.
Red Bluff, Cal	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	SE. to SW.
Sacramento, Cal	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
San Francisco, Cal	SE. to SW.	SE. to SW.	S. to W.	S. to W.	S. to W.
SOUTH PACIFIC COAST.					
Campo, Cal.[5]	SW. to NW.	S. to W.	S. to W.	S. to W.	S. to W.
Los Angeles, Cal	NE. to SE.	NE. to SE.	SE. to SW.	SE. to SW.	S. to W.
San Diego, Cal	SE. to SW.	S. to W.	S. to W.	SW. to NW.	S. to W.
Visalia, Cal[1]	E. to S.	E. to S.	SE. to SW.	SE. to SW.	SW. to NW.

[1] Station closed June 15, 1883. [2] Station closed March 31, 1883. [3] Station opened September 1, 1883.

or snow are observed to blow at stations of the Signal Service, &c.—Continued.

June.	July.	August.	September.	October.	November.	December.
SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
NW. to NE.	SW. to NW.	S. to W.	S. to W.	S. to W.	S. to W.	S. to W.
NE. to SE.	SE. to SW.	E. to S.	E. to S.	E. to S.	SW. to NW.	SE. to SW.
SW. to NW.	W. to N.	W. to N.	NW. to NE.	SW. to NW.	NW. to NE.	W. to N.
SW. to NW.	Variable.	NW. to NE.	SW. to NW.	SW. to NW.	SE. to SW.	NE. to SE.
S. to W.	N. to E.	NW. to NE.	NW. to NE.	S to W.	SW. to NW.	SW. to NW.
SW. to NW.	NE. to SE.	SW. to NW.	SW. to NW.	NE. to SE.	NE. to SE.	E. to S.
S. to W.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	NE. to SE.	SE. to SW.
SE. to SW.	S. to W.	S. to W.	SW. to NW.	S. to W.	S. to W.	S. to W.
SE. to SW.	S. to W.	S. to W.	SW. to NW.	SE. to SW.	E. to S.	S. to W.
....	....	....	SE. to SW.	W. to N.	S. to W.	SE. to SW.
S. to W.	S. to W.	S. to W.	S. to W.	S. to W.	S. to W.	S. to W.
....	....	....	....	SW. to NW.	E. to S.	E. to S.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.
W. to N.	SW. to NW.	SW. to NW.	SW. to NW.	S. to W.	SE. to SW.	SE. to SW.
No precipitation.	No precipitation.	No precipitation.	SE. to SW.	SE. to SW.	SW. to NW.	SE. to SW.
SE. to SW.	SE. to SW.	S. to W.	SE. to SW.	E. to S.	E. to S.	SE. to SW.
SE. to SW.	S. to W.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
S. to W.	S. to W.	S. to W.	S. to W.	S. to W.	S. to W.	SE. to SW.
S. to W.	No precipitation.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
SE. to SW.	No precipitation.	No precipitation.	No precipitation.	S. to W.	SE. to SW.	E. to S.
S. to W.	S. to W.	SW. to NW.	NW. to NE.	S. to W.	S. to W.	S. to W.
SW. to NW.	No precipitation.	SW. to NW.	SE. to SW.	W. to N.	SW. to NW.	E. to S.

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[4] Station opened October 1, 1883.

[5] Station closed September 30, 1882.

APPENDIX 73.

Table showing the quadrants from which the winds least likely to be followed by rain or snow of the

[Computed from observations taken during a period of

Stations.	January.	February.	March.	April.	May.
NEW ENGLAND.					
Eastport, Me	W. to N.	W. to N.	W. to N.	SW. to NW.	W. to N.
Portland, Me	E. to S.	E. to S.	W. to N.	W. to N.	W. to N.
Burlington, Vt.[1]	SW. to NW.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE
Boston, Mass	N. to E.	W. to N.	SW. to NW.	NW. to NE.	W. to N.
Provincetown, Mass	W. to N.	NE. to SE.	SW. to NW.	W. to N.	W. to N.
Springfield, Mass.[2]	NE. to SE.	NE. to SE.	NE. to SE.	SW. to NW.	SW. to NW.
Thatcher's Island, Mass.[3]	N. to E.	W. to N.	W. to N.	W. to N.	W. to N.
Wood's Holl, Mass.[4]	NW. to NE.	W. to N.	W. to N.	W. to N.	W. to N.
Block Island, R. I	W. to N.	N. to E.	W. to N. E. to S.	W. to N.	E. to S.
Newport, R. I.[5]	W. to N.	NW. to NE.	W. to N.	W. to N.	W. to N.
New Haven, Conn	E. to S.	W. to N.	W. to N.	W. to N.	W. to N.
New London, Conn	NE. to SE.	NE. to SE.	NW. to NE.	W. to N.	W. to N.
MIDDLE ATLANTIC STATES.					
Albany, N. Y	NE. to SE.	NE. to SE.	N. to E.	NE. to SE.	N. to E.
New York City	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
Philadelphia, Pa	W. to N.	W. to N.	W. to N.	NW. to NE.	W. to N.
Williamsport, Pa.[1]	S. to W.	NW. to NE.	SW. to NW.	NW. to NE.	NW. to NE.
Atlantic City, N. J	W. to N. E. to S.	W. to N.	W. to N.	W. to N.	W. to N.
Barnegat City, N. J	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
Cape May, N. J	SW. to NW.	SW. to NW.	W. to N.	SW. to NW.	W. to N.
Sandy Hook, N. J	SW. to NW.	W. to N.	W. to N.	NW. to NE.	NW. to NE.
Delaware Breakwater, Del	E. to S.	W. to N.	SW. to NW.	S. to W.	W. to N.
Baltimore, Md	W. to N.	W. to N.	SW. to NW.	W. to N.	W. to N.
Washington City	SW. to NW.	SW. to NW.	SW. to NW.	W to N.	SW. to NW.
Cape Henry, Va	SW. to NW.	W. to N.	W. to N.	W. to N.	W. to N.
Chincoteague, Va	E. to S.	W. to N.	W. to N.	W. to N.	W. to N.
Lynchburg, Va	W. to N.	W. to N.	W. to N.	W. to N.	NW. to NE.
Norfolk, Va	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
SOUTH ATLANTIC STATES.					
Cape Lookout, N. C.[6]	W. to N.	E. to S.	W. to N.	NW. to NE.	W. to N.
Charlotte, N. C	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
Hatteras, N. C	E. to S.	W. to N.	W. to N.	W. to N.	W. to N.
Kitty Hawk, N. C	E. to S. W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
Macon, Fort, N. C	E. to S.	W. to N.	W. to N.	W. to N.	W. to N.
Portsmouth, N. C	W. to N. E. to S.	W. to N.	W. to N.	W. to N.	W. to N.
Smithville, N. C	E. to S.	W. to N.	W. to N.	W. to N.	W. to N.
Wilmington, N. C	W. to N. E. to S.	W. to N.	W. to N.	W. to N.	W. to N.
Charleston, S. C	E. to S.	SE. to SW.	W. to N.	W. to N.	W. to N.
Augusta, Ga	W. to N.	W. to N.	W. to N.	NW. to NE.	W. to N.
Savannah, Ga	W. to N.	SW. to NW.	NW. to NE.	W. to N.	W. to N.
Jacksonville, Fla	E. to S.	W. to N.	W. to N.	W. to N.	W. to N.
FLORIDA PENINSULA.					
Cedar Keys, Fla	SW. to NW.	SW. to NW.	SW. to NW.	NW. to NE.	W. to N.
Key West, Fla	W. to N.	SW. to NW.	W. to N.	SW. to NW.	SW. to NW.
Punta Rasa, Fla.[1]	W. to N.	W. to N.	N. to E.	NW. to NE.	NW. to NE.
Sanford, Fla	....	....	(7)	NE. to SE.	NW. to NE.
EASTERN GULF STATES.					
Atlanta, Ga	W. to N.	W. to N.	NW. to NE.	NW. to NE.	NW. to NE.
Pensacola, Fla	W. to N.	SW. to NW.	W. to N.	NW. to NE.	W. to N.

[1] Station closed June 15, 1883.

[2] Station closed December 31, 1882.

[3] Changed to a third-class station May 31, 1883.

[4] Station closed January 31, 1882.

[5] Station closed March 31, 1883.

[6] Station closed December 31, 1880.

[7] Made a first-class station March 26, 1883.

APPENDIX 73.

are observed to blow at stations of the Signal Service, United States Army, during each month
year.

from one to thirteen years—1871 to 1883, inclusive.]

June.	July.	August.	September.	October.	November.	December.
W. to N.	NE. to SE.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	E. to S.
NE to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	SW. to NW.	SW. to NW.
NW. to NE.	NW. to NE.	W. to N.	W. to N.	W. to N.	NW. to NE.	N. to E.
N. to E.	NW. to NE.	W. to N.	W. to N.	SW. to NW.	W. to N.	N to E.
NE. to SE.	W. to N.	NE. to SE.	SW. to NW.	SW. to NW.	SW. to NW.	NE. to SE.
NE. to SE.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
NW. to NE.	NW. to NE.	W. to N.	W. to N.	NW. to NE.	NW. to NE.	W. to N.
N. to E.	W. to N.	W. to N.	W. to N.	W. to N.	E. to S.	W. to N.
W. to N.	NW. to NE.	W. to N.	W. to N.	W. to N.	W. to N.	E. to S.
W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N. E. to S.
W. to N.	W. to N.	NW. to NE	W. to N.	W. to N.	W. to N.	E. to S.
NE. to SE.	N. to E.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
NW. to NE.	N. to E.	NW. to NE.	W. to N.	W. to N.	W. to N.	W. to N.
Variable.	S. to W. N. to E.	NW. to NE.	Variable.	NW. to NE.	SE. to SW.	SW. to NW.
NE. to SE.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
NW. to NE.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
NW. to NE.	SW. to NW.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	SW. to NW.
NW. to NE.	NW. to NE.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	E. to S.	NE. to SE.
N. to E.	N. to E.	NW. to NE.	SW. to NW.	W. to N.	W. to N.	W. to N.
N. to E.	N. to E.	W. to N.	SW. to NW.	SW. to NW.	W. to N.	SW. to NW.
W. to N.	W. to N.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	W. to N.
N. to E.	W. to N.	NW. to NE.	W. to N.	W. to N.	SW. to NW.	NE. to SE.
NW. to NE.	NW. to NE.	W. to N.	W. to N.	NW. to NE.	W. to N.	W. to N.
NW. to NE.	W. to N.	W. to N.	W. to N.	W. to N.	SW. to NW.	W. to N.
N. to E	NW. to NE.	W. to N.	W. to N.	W. to N.	SW. to NW.	W. to N.
NW. to NE.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
W. to N.	W. to N.	W. to N.	SW. to NW.	W. to N.	W. to N.	W. to N.
NW. to NE	NW. to NE.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N. E. to S.
NW. to NE.	E. to S.	W. to N.	SW. to NW.	SW. to NW.	E. to S.	W. to N.
W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N
NW. to NE.	W. to N.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	W. to N.
NW. to NE.	W. to N.	W. to N.	W. to N.	W. to N.	SW. to NW.	W. to N.
NW. to NE.	NW. to NE.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	NW. to NE.
N. to E.	N. to E.	W. to N.	W. to N.	SW. to NW.	W. to N.	W. to N.
NW. to NE.	NW. to NE.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	W. to N.
W. to N.	W. to N.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	W. to N.
NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.	W. to N.	SW. to NW.	SW. to NW.
W. to N.	W. to N.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	W. to N.
NW. to NE.	NW. to NE.	NW. to NE.	W. to N.	W. to N.	NW. to NE.	W. to N.
W. to N.	NW. to NE.	S. to W.	W. to N.	Variable.	SE. to SW.	Variable.
NW. to NE.	N. to E.	NW. to NE.	NW. to NE.	S. to W.	W. to N.	W. to N.
NW. to NE.	E. to S.	W. to N.	SW. to NW.	W. to N.	SW. to NW.	W. to N.

Table showing the quadrants from which the winds least likely to be followed by rain

Stations.	January.	February.	March.	April.	May.
EASTERN GULF STATES—Cont'd.					
Mobile, Ala	SW. to NW.	SW. to NW.	W. to N.	W. to N.	W. to N.
Montgomery, Ala	W. to N.	SW. to NW.	W. to N.	W. to N.	W. to N.
Starkville, Miss.[1]	SW. to NW.	Variable.	Variable.	NW. to NE.	NW. to NE.
Vicksburg, Miss	W. to N.	W. to N.	W. to N.	W. to N.	NW. to NE.
New Orleans, La	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
WESTERN GULF STATES.					
Port Eads, La.[2]	SW. to NW.	SW. to NW.	NW. to NE.	NW. to NE.	NW. to NE.
Shreveport, La	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.	NW. to NE.
Fort Smith, Ark	SE. to SW.	Variable.	NW. to NE.	W. to N.	NW. to NE.
Little Rock, Ark	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.	W. to N.
Gibson, Fort, Ind. T.[3]	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	NW. to NE.
Boerne, Tex.[4]	Variable.	SW. to NW.	S. to W.	S. to W.	SW. to NW.
Corsicana, Tex.[5]	SW. to NW.	W. to N.	SW. to NW.	SW. to NW.	SW. to NW.
Decatur, Tex.[6]	SW. to NW.	SW. to NW.	NW. to NE.	N. to E.	W. to N.
Denison, Tex.[2]	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.
Fredericksburg, Tex.[7]	SW. to NW.	NE. to SE.	SW. to NW.	N. to E.	W. to N.
Galveston, Tex	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.	SW. to NW.
Indianola, Tex	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
Mason, Tex.[8]	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	NW. to NE.
Palestine, Tex	SW. to NW.	W. to N.	NW. to NE.	NW. to NE.	W. to N.
Pilot Point, Tex.[9]	E. to S.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
San Antonio, Tex.[1]	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
RIO GRANDE VALLEY.					
Brackettville, Tex.[10]	SW. to NW.	SW. to NW.	S. to W.	SW. to NW.	SW. to NW.
Brownsville, Tex	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.
Castroville, Tex.[11]	S. to W.	S. to W.	SW. to NW.	SW. to NW.	SW. to NW.
Eagle Pass, Tex.[1]	S. to W.	SW. to NW.	SW. to NW.	SW. to NW.	S. to W.
Edinburg, Tex.[12]	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	Variable.
Laredo, Tex.[10]	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
Rio Grande City, Tex	S. to W.	S. to W.	S. to W.	W. to N.	SW. to NW.
Uvalde, Tex	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.	W. to N.
OHIO VALLEY AND TENNESSEE.					
Chattanooga, Tenn	W. to N.	N. to E.	N. to E.	W. to N.	NW. to NE.
Knoxville, Tenn	E. to S.	E. to S.	W. to N.	E. to S.	E. to S.
Memphis, Tenn	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
Nashville, Tenn	W. to N.	W. to N.	SW. to NW.	W. to N.	W. to N.
Louisville, Ky	W. to N.	W. to N.	W. to N.	W. to N.	NW. to NE.
Indianapolis, Ind	N. to E.	NW. to NE.	W. to N.	W. to N.	NW. to NE.
Cincinnati, Ohio	W. to N.	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.
Columbus, Ohio	NW. to NE.	NW. to NE.	W. to N.	W. to N.	NW. to NE.
Morgantown, W. Va.[2]	W. to N.	W. to N.	N. to E.	NW. to NE.	NW. to NE.
Pittsburg, Pa	NW. to NE.	NW. to NE.	W. to N.	N. to E.	N. to E.
LOWER LAKES.					
Buffalo, N. Y	NW. to NE	NW. to NE.	NW. to NE.	W. to N.	W. to N.
Oswego, N. Y	N. to E.	N. to E.	N. to E.	SW. to NW.	N. to E.
Rochester, N. Y	N. to E.	NW. to NE.	N. to E.	NW. to NE.	N. to E.
Erie, Pa	N. to E.	N. to E.	N. to E.	NW. to NE.	N. to E.
Cleveland, Ohio	NW. to NE.	N. to E.	NW. to NE.	W. to N.	W. to N.
Sandusky, Ohio	NW. to NE.	N. to E.	NW. to NE.	NW. to NE.	NW. to NE.
Toledo, Ohio	NW. to NE.	W. to N.	W. to N.	W. to N.	NW. to NE.
Detroit, Mich	NW. to NE.	NW. to NE.	NW. to NE.	W. to N.	W. to N.
UPPER LAKES.					
Alpena, Mich	N. to E.	N. to E.	NW. to NE.	S. to W.	NW. to NE.
Escanaba, Mich	NE. to SE.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
Grand Haven, Mich	NW. to NE.	NW. to NE.	NW. to NE.	W. to N.	W. to N.
Mackinaw City, Mich	NW. to NE.	NW. to NE.	NE. to SE.	S. to W.	NW. to NE.
Marquette, Mich	NE. to SE.	N. to E.	N. to E.	S. to W.	SW. to NW.
Port Huron, Mich	NW. to NE.	NW. to NE.	W. to N.	SW. to NW.	SW. to NW.
Champaign, Ill.[2]	SW. to NW.	SW. to NW.	W. to N.	W. to N.	W. to N.
Chicago, Ill	N. to E.	NW. to NE.	W. to N.	W. to N.	W. to N.
Milwaukee, Wis	N. to E.	NW. to NE.	W. to N.	W. to N.	W. to N.
Duluth, Minn	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.

[1] Station closed June 15, 1883.

[2] Station closed March 31, 1883.

[3] Station closed May 13, 1882.

[4] Station closed July 28, 1880.

[5] Station closed October 31, 1881.

[6] Station closed September 10, 1882.

or snow are observed to blow at stations of the Signal Service, &c.—Continued.

June.	July.	August.	September.	October.	November.	December.
NW. to NE.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
N. to E.	N. to E.	NW. to NE.	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.
N. to E.	NW. to NE.	NW. to NE.	SW. to NW.	N. to E.	SW. to NW.	SW. to NW.
NW. to NE.	N. to E.	N. to E.	W. to N.	SW. to NW.	SW. to NW.	W. to N.
W. to N.	NW. to NE.	NW. to NE.	W. to N.	SW. to NW.	SW. to NW.	W. to N.
NW. to NE.	W. to N.	NW. to NE.	SW. to NW.	NW. to NE.	SW. to NW.	SW. to NW.
W. to N.	NW. to NE.	W. to N.	SW. to NW.	NW. to NE.	SW. to NW.	SW. to NW.
NW. to NE.	N. to E.	SE. to SW.	Variable.	NW. to NE.	SW. to NW.	NW. to NE.
NE to SE.	W. to N.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	W. to N.
NW. to NE.	W. to N.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
Variable.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
W. to N.	W. to N.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
W. to N.	W. to N.	NW. to NE.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
NW. to NE.	W. to N.	NE. to SE. NW. to NE.	W. to N.	SW. to NW.	S. to W.	SW. to NW.
NW. to NE.	NW. to NE.	SW. to NW.	SW. to NW.	W. to N.	SW. to NW.	SW. to NW.
SW. to NW.	W. to N.	W. to N.	SW. to NW.	W. to N.	SW. to NW.	SW. to NW.
SW. to NW.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
SW. to NW.	SW. to NW.	Variable.	SW. to NW.	SW. to NW.	S. to W.	W. to N.
NW. to NE.	NW. to NE.	NW. to NE.	SW. to NW.	SW. to NW.	W. to N.	SW. to NW.
NW. to NE.	Variable.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
W. to N.	W. to N.	SW. to NW.	SW. to NW.	SW. toNW.	S. to W.	SE. to SW.
SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. toNW.	SW. to NW.	SW. to NW.
N. to E.	NW. to NE.	SW. to NW.	SW. to NW.	SW. toNW.	S. to W.	S. to W.
NW. to NE.	SW. to NW.	SW. to NW.	SW. to NW.	S. to W.	S. to W.	S. to W.
Variable.	Variable.	SW. to NW.	NE. to SE. SW. to NW.	Variable.	S. to W.	SE. to SW.
SW. to NW.	SW. to NW.	SW. to NW.	S. to W.	SW. to NW.	S. to W.	S. to W.
SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	S. to W.	S. to W.
SW to NW.	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.	SW. to NW.	SW. to NW.
NW. to NE.	N. to E.	W. to N.	SW. to NW.	W. to N.	W. to N.	SW. to NW.
W. to N.	E. to S.	E. to S.	W. to N.	E. to S.	E. to S.	W. to N.
N. to E.	N. to E.	E. to S.	SW. to NW.	W. to N.	SW. to NW.	W. to N.
NW. to NE.	NW. to NE.	N. to E.	W. to N.	NW. to NE.	SW. to NW.	SW. to NW.
N. to E.	N. to E.	NW. to NE.	N. to E.	NW. to NE.	SW. to NW.	W. to N.
N. to E.	NE. to SE.	NW. to NE.	W. to N.	N. to E.	W. to N.	W. to N.
N. to E.	N. to E.	NW. to NE.	N. to E.	NW. to NE.	W. to N.	W. to N.
N. to E.	N. to E.	NW. to NE.	NW. to NE.	W. to N.	NW. to NE.	NW. to NE.
N. to E.	NE. to SE.	N. to E.	W. to N.	NE. to SE.	W. to N.	NW. to NE.
N. to E.	NE. to SE.	N. to E.	W. to N.	N. to E.	N. to E.	NW. to NE.
NW. to NE.	NW. to NE.	W. to N.	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.
N. to E.	N. to E.	N. to E.	N. to E.	N. to E.	N. to E.	N. to E.
N. to E.	N. to E.	N. to E.	N. to E.	NW. to NE.	N. to E.	N. to E.
N. to E.	NW. to NE.	N. to E.	N. to E.	N. to E.	N. to E.	N. to E.
NW. to NE.	N. to E.	SW. to NW.	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.
W. to N.	NE. to SE.	NW. to NE.	N. to E.	NW. to NE.	N. to E.	N. to E.
NW. to NE.	NW. to NE.	W. to N.	NW. to NE.	NW. to NE.	W. to N.	W. to N.
W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	NW. to NE.	NW. to NE.
NW. to NE.	N. to E.	NW. to NE.	N. to E.	N. to E.	N. to E.	N. to E.
NW. to NE.	NW. to NE.	NW. to NE.	SW. to NW.	N. to E.	NE. to SE.	NE. to SE.
NW. to NE.	NW. to NE.	W. to N.	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.
NE. to SE.	NW. to NE.	SE. to SW.	W. to N.	NW. to NE.	N. to E.	N. to E.
N. to E. SW. to NW.	NW. to NE.	N. to E.	N. to E.	N. to E.	N. to E.	N. to E.
W. to N.	W. to N.	W. to N.	N. to E.	N. to E.	NW. to NE.	N. to E.
NW. to NE.	N. to E.	NW. to NE.	NW. to NE.	W. to N.	NW. to NE.	N. to E.
W. to N.	NW. to NE.	W. to N.	W. to N.	W. to N.	N. to E.	NW. to NE.
W. to N.	NW. to NE.	NW. to NE.	W. to N.	N. to E.	N. to E.	N. to E.
E. to S.	E. to S.	E. to S.	E. to S.	W. to N.	E. to S.	E. to S.

[7] Station closed February 25, 1883.
[8] Station closed April 15, 1882.
[9] Station closed March 31, 1881.
[10] Reduced to third-class station December 16, 1882.
[11] Station closed March 29, 1882.
[12] Reduced to third-class station February 12, 1881.

Table showing the quadrants from which the winds least likely to be followed by rain

Stations.	January.	February.	March.	April.	May.
UPPER MISSISSIPPI VALLEY.					
Saint Paul, Minn	S. to W.	S. to W.	SW. to NW.	SW. to NW.	SW. to NW.
La Crosse, Wis	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
Madison, Wis.[1]	NW. to NE.	W. to N.	W. to N.	SW. to NW.	W. to N.
Davenport, Iowa	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
Des Moines, Iowa	SW. to NW.	S. to W.	SW. to NW.	W. to N.	W. to N.
Dubuque, Iowa	W. to N.	SW. to NW.	SW. to NW.	W. to N.	W. to N.
Keokuk, Iowa	W. to N.	S. to W.	SW. to NW.	W. to N.	SW. to NW.
Cairo, Ill	W. to N.	SW. to NW.	W. to N.	W. to N.	NW. to NE.
Springfield, Ill	W. to N.	SW. to NW.	S. to W.	SW. to NW.	N. to E.
Saint Louis, Mo	W. to N.	W. to N.	W. to N.	NW. to NE.	NW. to NE.
MISSOURI VALLEY.					
Springfield, Mo.[2]	W. to N.	W. to N.	W. to N.	W. to N.	N. to E.
Leavenworth, Kans	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
Omaha, Nebr	SW. to NW.	SW. to NW.	S. to W.	SW. to NW.	SW. to NW.
Bennett, Fort, Dak	SE. to SW.	S. to W.	S. to W.	S. to W.	S. to W.
Huron, Dak	S. to W.	S. to W.	S. to W.	SW. to NW.	S. to W.
Yankton, Dak	S. to W.	S. to W.	S. to W.	S. to W.	W. to N.
EXTREME NORTHWEST.					
Breckenridge, Minn.[3]	S. to W.	S. to W.	S. to W.	S. to W.	NW. to NE.
Moorhead, Minn	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	N. to E.
Saint Vincent, Minn	N. to E.	N. to E.	SW. to NW.	S. to W.	SW. to NW.
Bismarck, Dak	S. to W.	S. to W.	SW. to NW.	SW. to NW.	S. to W.
Buford, Fort, Dak	E. to S.	SW. to NW.	S. to W.	S. to W.	W. to N.
Stevenson, Fort, Dak.[2]	S. to W.	N. to E.	S. to W.	SW. to NW.	SW. to NW.
NORTHERN SLOPE.					
Assinaboine, Fort, Mont	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
Benton, Fort, Mont	SE. to SW.	NW. to NE.	E. to S.	SE. to SW.	SE. to SW.
Billings, Mont.[4]	W. to N. E. to S.	E. to S.	SE. to SW.	SE. to SW.	W. to N.
Custer, Fort, Mont	N. to E.	NE. to SE.	NE. to SE.	S. to W.	S. to W.
Helena, Mont	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
Keogh, Fort, Mont.[3]	NE. to SE.	E. to S.	E. to S.	S. to W.	S. to W.
Maginnis, Fort, Mont	E. to S.	NE. to SE.	E. to S.	Variable.	Variable.
Poplar River, Mont	E. to S.	S. to W.	N. to E.	Variable.	S. to W.
Shaw, Fort, Mont	E. to S.	E. to S.	E. to S.	E. to S.	SE. to SW.
Virginia City, Mont.[5]	NW. to NE.	N. to E.	E. to S.	NW. to NE.	N. to E.
Deadwood, Dak	E. to S.	E. to S.	E. to S.	E. to S.	W. to N.
Cheyenne, Wyo	E. to S.	S. to W.	E. to S.	S. to W.	S. to W.
Washakie, Fort, Wyo.[2]	NE. to SE.	SE. to SW.	S. to W.	N. to E.	SE. to SW.
North Platte, Nebr	S. to W.	S. to W.	S. to W.	S. to W.	SW. to NW.
MIDDLE SLOPE.					
Denver, Colo	NE. to SE.	SW. to NW.	SE. to SW.	E. to S.	SE. to SW.
West Las Animas, Colo	S. to W.	Variable.	Variable.	NW. to NE.	S. to W.
Dodge City, Kans	S. to W.	SW. to NW.	S. to W.	SW. to NW.	W. to N.
Elliott, Fort, Tex	N. to E. S. to W.	E. to S.	SE. to SW.	SW. to NW.	SW. to NW.
SOUTHERN SLOPE.					
Sill, Fort, Ind. T	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
Coleman City, Tex.[6]	S. to W.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
Concho, Fort, Tex	SE. to SW.	SW. to NW.	SW. to NW.	N. to E.	SW. to NW.
Davis, Fort, Tex	E. to S.	E. to S.	SW. to NW.	SW. to NW.	W. to N.
Griffin, Fort, Tex.[7]	SW. to NW.	S. to W.	SW. to NW.	SW. to NW.	NW. to NE.
Henrietta, Tex.[1]	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.
Jacksborough, Tex.[2]	Variable.	W. to N.	SW. to NW.	N. to E.	NW. to NE.
McKavett, Fort, Tex.[8]	SW. to NW.	NW. to NE.	SW. to NW.	SW. to NW.	W. to N.
Stockton, Fort, Tex	S. to W.	Variable.	W. to N.	SW. to NW.	SW. to NW.
SOUTHERN PLATEAU.					
La Mesilla, N. Mex.[9]	S. to W.	S. to W.	N. to E.	NW. to NE.	Variable.
Santa Fé, N. Mex.[2]	W. to N.	NE. to SE.	N. to E.	N. to E.	N. to E.

[1] Station closed March 31, 1883.
[2] Station closed June 15, 1883.
[3] Station closed November 30, 1880.
[4] Station closed June 24, 1883.
[5] Station closed November 18, 1880.

or snow are observed to blow at stations of the Signal Service, &c.—Continued.

June.	July.	August.	September.	October.	November.	December.
NW. to NE.	N. to E.	NW. to NE.	W. to N.	N. to E.	NW. to NE.	S. to W.
N. to E.	N. to E.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
NW. to NE.	NW. to NE.	SW. to NW.	W. to N.	SW. to NW.	W. to N.	NW. to NE.
NW. to NE.	W. to N.	W. to N.	NW. to NE.	W. to N.	NW. to NE.	NW. to NE.
NW. to NE.	NW. to NE.	W to N.	NW. to NE.	NW. to NE.	SW. to NW.	SW. to NW.
N. to E.	W. to N.	NW. to NE.	N. to E.	SW. to NW.	N. to E.	NW. to NE.
W. to N.	NW. to NE.	SW. to NW.	NW. to NE.	W. to N.	NW. to NE.	S. to W.
W. to N.	NW. to NE.	W. to N.	W. to N:	N. to E.	W. to N.	SW. to NW.
N. to E.	NE. to SE.	W. to N.	W. to N.	NW. to NE.	W. to N.	W. to N.
NW. to NE.	W. to N.	NW. to NE.	N. to E.	W. to N.	SW. to NW.	SW. to NW.
W. to N.	W. to N.	NE. to SE.	SW. to NW.	SW. to NW.	NW. to NE.	SW. to NW.
SW. to NW.	SW. to NW.	SW. to NW.	N. to E.	SW. to NW.	SW. to NW.	SW. to NW.
SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
S. to W.	S. to W.	S. to W.	S. to W.	SW. to NW.	S. to W.	S. to W.
SW. to NW.	S. to W.	S. to W.	S. to W.	SW. to NW.	S. to W.	S. to W.
W. to N.	W. to N.	SW. to NW.	SW. to NW.	S. to W.	S. to W.	S. to W.
NW. to NE.	SW. to NW.	SW. to NW.	S. to W.	N. to E.	S. to W. N. to E.	N. to E.
W. to N.	S. to W.	S. to W.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
W. to N.	N. to E.	N. to E.	NW. to NE.	S. to W.	N. to E.	N. to E.
SW. to NW.	S. to W.	NW. to NE.	S. to W.	S. to W.	S. to W.	S. to W.
W. to N.	NW. to NE.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
W. to N.	S. to W.	SW. to NW.	S. to W.	SE. to SW.	NE. to SE.	SE. to SW.
NE. to SE.	NE. to SE.	SW. to NW.	NW. to NE.	E. to S. W. to N.	E. to S.	E. to S.
E. to S.	E. to S.	SE. to SW.	E. to S.	E. to S.	E. to S.	E. to S.
W. to N.	....	....	....	....	....	....
E. to S.	SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	E. to S.	S. to W.
NE. to SE.	NE. to SE.	NE. to SE.	N. to E.	NE. to SE.	NE. to SE.	NE. to SE.
S. to W.	E. to S.	SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	E. to S.
E. to S.	E. to S.	Variable.	SE. to SW.	E. to S.	E. to S.	E. to S.
S. to W.	E. to S.	SW. to NW.	S. to W.	N. to E.	E. to S.	S. to W.
SE. to SW.	NW. to NE.	SE. to SW.	SE. to SW.	E. to S.	E. to S.	E. to S.
N. to E.	N. to E.	SE. to SW.	E. to S. W. to N.	NE. to SE.	N. to E.	NE. to SE.
SW. to NW.	E. to S.	W. to N.	NE. to SE	E. to S.	E. to S.	E. to S.
SW. to NW.	SW. to NW.	N. to E.	NE. to SE.	E. to S.	NE. to SE.	E. to S.
SE. to SW.	N. to E.	Variable.	S. to W.	N. to E.	NW. to NE.	NE. to SE.
SW. to NW.	SW. to NW.	SW. to NW.	S. to W.	SW. to NW.	S. to W.	SE. to SW.
S. to W.	S. to W.	S. to W.	SE. to SW.	S. to W.	S. to W.	S. to W.
SW. to NW.	W. to N.	S. to W.	Variable.	SW. to NW.	Variable.	SE. to SW.
W. to N.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
SW. to NW.	W. to N.	W. to N.	W. to N.	SW. to NW.	S. to W.	SW. to NW.
SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.	SW. to NW.	SW. to NW.
W. to N.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
SW. to NW.	SW. to NW.	W. to N.	W. to N.	SW. to NW.	S. to W.	SW. to NW.
NW. to NE.	W. to N.	SW. to NW.	E. to S.	W. to N.	E. to S.	Variable.
SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
SW. to NW.	W. to N.	SW. to NW.	SW. to NW.	SW. to NW.	S. to W.	SW. to NW.
NW. to NE.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SE. to SW.	W. to N.
W. to N.	W. to N.	W. to N.	S. to W.	W. to N.	S. to W.	SE. to SW.
N. to E.	N. to E.	NW. to NE.	SE. to SW.	NW. to NE.	Variable.	Variable.
NW. to NE.	N. to E.	SW. to NW.	N. to E.	W. to N.	W. to N.	Variable.

[6] Station closed August, 1883.

[7] Station closed April 14, 1882.

[8] Station closed February, 1883.

[9] Station closed August 6, 1882.

Table showing the quadrants from which the winds least likely to be followed by rain

Stations.	January.	February.	March.	April.	May.
SOUTHERN PLATEAU—Cont'd.					
Silver City, N. Mex.[1]	NE. to SE.	NE. to SE.	N. to E.	NW. to NE.	NE. to SE.
Socorro, N. Mex.[2]	NE. to SE.	NE. to SE.	N. to E.	W. to N.	SW. to NW.
El Paso, Tex	SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	W. to N.
Apache, Fort, Ariz	NW. to NE.	NW. to NE.	W. to N.	NW. to NE.	W. to N.
Burkes, Ariz.[3]	NW. to NE.	NW. to NE.	Variable.	N. to E.	Variable.
Florence, Ariz.[7]	NE. to SE.	NW. to NE.	W. to N.	NE. to SE.	Variable.
Grant, Fort, Ariz	SE. to SW.	SW. to NW.	N. to E.	N. to E.	NE. to SE.
Phœnix, Ariz.[4]	NW. to NE.	NW. to NE.	NE. to SE.	NE. to SE.	Variable.
Prescott, Ariz	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.	SW. to NW.
Thomas, Fort, Ariz	NE. to SE.	NE. to SE.	N. to E.	NE. to SE.	SW. to NW.
Tucson, Ariz.[5]	NW. to NE.	N. to E.	NW. to NE.	N. to E.	NW. to NE.
Verde, Fort, Ariz.[6]	NE. to SE.	N. to E.	N. to E.	N. to E.	NW. to NE.
Wickenburg, Ariz.[7]	NW. to NE.	NW. to NE.	NW. to NE.	N. to E.	Variable.
Yuma, Ariz	NW. to NE.	SW. to NW.	N. to E.	NE. to SE.	No precipitation.
MIDDLE PLATEAU.					
Pioche, Nev.[5]	NE. to SE.	N. to E.	NE. to SE.	NE. to SE.	NE. to SE.
Winnemucca, Nev.[5]	E. to S. W. to N.	W. to N.	NE. to SE.	E. to S.	E. to S.
Salt Lake City, Utah	N. to E.	NW. to NE.	N. to E.	S. to W.	N. to E.
NORTHERN PLATEAU.					
Missoula, Fort, Mont.[5]	E. to S.	W. to N.	N. to E.	E. to S.	NE. to SE.
Boise City, Idaho	N. to E.	NW. to NE.	NW. to NE.	NE. to SE.	N. to E.
Eagle Rock, Idaho[5]	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
Lewiston, Idaho	Variable.	NW. to NE.	SE. to SW.	NW. to NE.	NW. to NE.
Umatilla, Oreg.[8]	NW. to NE.	NW. to NE.	N. to E.	SE. to SW.	E. to S.
Dayton, Wash. T	NE. to SE.	N. to E.	NW. to NE.	N. to E.	NW. to NE.
Spokane Falls, Wash. T	E. to S.	W. to N.	NW. to NE.	W. to N.	W. to N.
NORTH PACIFIC COAST.					
Canby, Fort, Wash. T.[9]					
Olympia, Wash. T	NE. to SE.	NW. to NE.	NE. to SE.	NE. to SE.	NE. to SE.
Tatoosh Island, Wash. T.[10]					
Portland, Oreg	NW. to NE.	NW. to NE.	N. to E.	N. to E.	N. to E.
Roseburg, Oreg	NW. to NE.	NW. to NE.	NE. to SE.	NE. to SE.	NE. to SE.
MIDDLE PACIFIC COAST.					
Cape Mendocino, Cal	N. to E. S. to W.	N. to E.	Variable.	S. to W.	N. to E.
Red Bluff, Cal	N. to E.	NW. to NE.	N. to E.	NW. to NE.	N. to E.
Sacramento, Cal	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.
San Francisco, Cal	N. to E.	N. to E.	NW. to NE.	N. to E.	N. to E.
SOUTH PACIFIC COAST.					
Campo, Cal.[11]	NW. to NE.	NW. to NE.	NW. to NE.	NE. to SE.	E. to S.
Los Angeles, Cal	W. to N.	W. to N.	NW. to NE.	NW. to NE.	NW. to NE.
San Diego, Cal	NW. to NE.	NW. to NE.	N. to E.	NE. to SE.	N. to E.
Visalia, Cal.[5]	S. to W.	NW. to NE.	W. to N.	N. to E.	NE. to SE.

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[1] Station closed March 31, 1883.

[2] Station closed May 23, 1881.

[3] Station closed December, 1880.

[4] Changed to third-class station December 31, 1881.

[5] Station closed June 15, 1883.

or snow are observed to blow at stations of the Signal Service, &c.—Continued.

June.	July.	August.	September.	October.	November.	December.
N. to E.	N. to E.	NE. to SE.	N. to E.	NW. to NE.	NW. to NE.	N. to E.
SW. to NW.	NE. to SE.	NW. to NE.	NE. to SE.	Variable.	Variable.	SE. to SW.
SW. to NW.	SE. to SW.	S. to W.	SE. to SW.	NW. to NE.	SE. to SW.	SE. to SW.
SE. to SW.	NW. to NE.	NW. to NE.	NW. to NE.	W. to N.	W. to N.	W: to N.
No precipitation.	NW. to NE.	NW. to NE.	S. to W.	NW. to NE.	Variable.	NE. to SE.
No precipitation.	NW. to NE.	NE. to SE.	NW. to NE.	NE. to SE.	Variable.	NW. to NE.
NW. to NE.	NE. to SE.	N. to E.	Variable.	NW. to NE.	SW. to NW.	N. to E.
Variable.	NW. to NE.	W. to N.	NW. to NE.	NE. to SE.	NW. to NE.	NW. to NE.
NW. to NE.	NE. to SE.	NE. to SE.	W. to N.	W. to N.	NW. to NE.	NW. to NE.
NW. to NE.	SE. to SW.	N. to E.	NW. to NE.	NW. to NE.	S. to W.	NW. to NE.
NW. to NE.	N. to E.	N. to E.	NW. to NE.	N. to E.	W. to N.	N. to E.
NW. to NE.	N. to E.	N. to E.	NW. to NE.	NW. to NE.	NW. to NE.	N. to E.
SW. to NW.	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.	Variable.	NE. to SE.
Variable.	NW. to NE.	NW. to NE.	Variable.	Variable.	SE. to SW.	NW. to NE.
NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NW. to NE.	Variable.	NW. to NE.
E. to S.	NE. to SE.	NE. to SE.	NE. to SE.	W. to N.	NW. to NE.	E. to S.
S. to W.	N. to E.	N. to E.	N. to E.	N. to E.	N. to E.	N. to E.
NE. to SE.	NE. to SE.	NE. to SE.	S. to W.	NE. to SE.	SE. to SW.	E. to S.
N. to E.	E. to S.	S. to W.	SE. to SW.	N. to E.	N. to E.	N. to E.
NE. to SE.	Variable.	E. to S.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
SE. to SW.	S. to W.	E. to S.	E. to S.	NW. to NE.	S. to W.	NW. to NE.
NE. to SE.	NE. to SE.	NE. to SE.	N. to E.	NW. to NE.	NW. to NE.	NW. to NE.
NW. to NE.	NE. to SE.	NW. to NE.	NE. to SE.	NW. to NE.	NE. to SE.	NE. to SE.
NW. to NE.	NE. to SE.	NW. to NE.	E. to S.	W. to N.	W. to N.	E. to S.
....	....	....	NW. to NE.	N. to E.	NW. to NE.	N. to E.
NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.
....	....	....	....	NW. to NE.	NW. to NE.	NW. to NE.
NE. to SE.	N. to E.	N. to E.	N. to E.	N. to E.	NW. to NE.	NW. to NE.
NE. to SE.	E. to S.	NE. to SE.	E. to S.	NW. to NE.	N. to E.	NW. to NE.
No precipitation.	No precipitation.	No precipitation.	SW. to NW.	N. to E.	N. to E.	{S. to W. {N. to E.
NW. to NE.	NW. to NE.	Variable.	SW. to NW.	SW. to NW.	SW. to NW.	NE. to SE.
NW. to NE.	Variable.	Variable.	NW. to NE.	W. to N.	N. to E.	NW. to NE.
NW. to NE.	Variable.	NE. to SE.	NW. to NE.	N. to E.	N. to E.	N. to E.
NE. to SE.	No precipitation.	E. to S.	Variable.	Variable.	Variable.	NW. to NE.
NW. to NE.	No precipitation.	No precipitation.	No precipitation.	NE. to SE.	W. to N.	SW. to NW.
NE. to SE.	NE. to SE.	NE. to SE.	Variable.	NE. to SE.	NW. to NE.	NW. to NE.
NE. to SE.	No precipitation.	Variable.	Variable.	{N. to E.} {S. to W.}	NE. to SE.	N. to E.

[6] Changed to third-class station October 10, 1883.

[7] Station closed April 30, 1882.

[8] Station closed March 31, 1883.

[9] Station opened September 1, 1883.

[10] Station opened October 1, 1883.

[11] Station closed September 30, 1882.

APPENDIX 74.

Table showing the quadrants from which the winds most likely to be followed by rain or tricts of the

[Computed from observations taken during a period of

Geographical district.	January.	February.	March.	April.	May.
New England	SE. to SW.	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.
Middle Atlantic States	N. to E.	E. to S.	E. to S.	E. to S.	SE. to SW.
South Atlantic States	N. to E.	NE. to SE.	SE. to SW.	SE. to SW.	NE. to SE.
Florida Peninsula	NE. to SE.	E. to S.	E. to S.	S. to W.	NE. to SE.
Eastern Gulf States	E. to S.	E. to S.	SE. to SW.	SE. to SW.	SE. to SW.
Western Gulf States	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
Rio Grande Valley	E. to S.	E. to S.	NE. to SE.	NE. to SE.	NE. to SE.
Ohio Valley and Tennessee	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
Lower lakes	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.	S. to W.
Upper lakes	SE. to SW.	SE. to SW.	NE. to SE.	NE. to SE.	E. to S.
Upper Mississippi Valley	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
Missouri Valley	NW. to NE.	NW. to NE.	E. to S.	NE. to SE.	E. to S.
Extreme Northwest	E. to S.	E. to S.	NE. to SE.	NE. to SE.	E. to S.
Northern Slope	SW. to NW.	SW. to NW.	SW. to NW.	NW. to NE.	NW. to NE.
Middle Slope	NW. to NE.	N. to E.	N. to E.	N. to E.	N. to E.
Southern Slope	N. to E.	SE. to SW.	E. to S.	E. to S.	E. to S.
Southern Plateau	S. to W.	S. to W.	SE. to SW.	S. to W.	SE. to SW.
Middle Plateau	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SW. to NW.
Northern Plateau	SE. to SW.	SE. to SW.	SW. to NW.	S. to W.	S. to W.
North Pacific Coast	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.
Middle Pacific Coast	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
South Pacific Coast	E. to S.	S. to W.	S. to W.	S. to W.	SW. to NW.

APPENDIX 75.

Table showing the quadrants from which the winds least likely to be followed by rain or tricts of the

[Computed from observations taken during a period of

Geographical district.	January.	February.	March.	April.	May.
New England	NE. to SE.	W. to N.	W. to N.	W. to N.	W. to N.
Middle Atlantic States	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
South Atlantic States	E. to S.	W. to N.	W. to N.	W. to N.	W. to N.
Florida Peninsula	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
Eastern Gulf States	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
Western Gulf States	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.
Rio Grande Valley	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	W. to N.
Ohio Valley and Tennessee	W. to N.	W. to N.	W. to N.	W. to N.	NW. to NE.
Lower lakes	NW. to NE.	NW. to NE.	NW. to NE.	W. to N.	N. to E.
Upper lakes	N. to E.	NW. to NE.	W. to N.	W. to N.	W. to N.
Upper Mississippi Valley	W. to N.	SW. to NW.	W. to N.	W. to N.	W. to N.
Missouri Valley	SW. to NW.	S. to W.	S. to W.	SW. to NW.	SW. to NW.
Extreme Northwest	N. to E.	N. to E.	S. to W.	SW. to NW.	SW. to NW.
Northern Slope	E. to S.	E. to S.	E. to S.	S. to W.	S. to W.
Middle Slope	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
Southern Slope	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
Southern Plateau	NW. to NE.	N. to E.	NW. to NE.	N. to E.	NW. to NE.
Middle Plateau	N. to E.	N. to E.	N. to E.	N. to E.	N. to E.
Northern Plateau	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.	NE. to SE.
North Pacific Coast	NW. to NE.	NW. to NE.	NE. to SE.	N. to E.	NE. to SE.
Middle Pacific Coast	N. to E.	N. to E.	NW. to NE.	N. to E.	N. to E.
South Pacific Coast	NW. to NE.	NW. to NE.	NW. to NE.	N. to E.	N. to E.

APPENDIX 74.

snow are observed to blow during each month of the year, in the several geographical dis-
United States.

from one to thirteen years—1871 to 1883, inclusive.]

June.	July.	August.	September.	October.	November.	December.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	SE. to SW.	SE. to SW.	SE. to SW.
SE. to SW.	SE. to SW.	SE. to SW.	NE. to SE.	N. to E.	N. to E.	SE. to SW.
NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	NE. to SE.	E. to S.
SE. to SW.	SE. to SW.	E. to S.	NE. to SE.	E. to S.	E. to S.	E. to S.
E. to S.	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.	E. to S.
E. to S.	E. to S.	NE. to SE.	NE. to SE.	NE. to SE.	NW. to NE.	N. to E.
SE. to SW.	S. to W.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
S. to W.	S. to W.	SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.	SW. to NW.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	E. to S.
E. to S.	SE. to SW.	E. to S.	SE. to SW.	E. to S.	NW. to NE.	NW. to NE.
E. to S.	E. to S.	E. to S.	NE. to SE.	E. to S.	W. to N.	E. to S.
SE. to SW.	SE. to SW.	NE. to SE.	NW. to NE.	W. to N.	SW. to NW.	NW. to NE.
N. to E.	E. to S.	E. to S.	NW. to NE.	N. to E.	NW. to NE.	NW. to NE.
E. to S.	E. to S.	NE. to SE.	NE. to SE.	E. to S.	N. to E.	N. to E.
SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.	E. to S.	S. to W.
NW. to NE.	SE, to SW.	SE. to SW.	SE. to SW.	SE. to SW.	S. to W.	SE. to SW.
SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SE. to SW.	SE. to SW.	SE. to SW.
S. to W.	S. to W.	SE. to SW.	SE. to SW.	S. to W.	S. to W.	SE. to SW.
SE. to SW.	SE. to SW.	S. to W.	SE. to SW.	SE. to SW.	SE. to SW.	SE. to SW.
S. to W.	S. to W.	SW. to NW.	SW. to NW.	SW. to NW.	S. to W.	E. to S.

APPENDIX 75.

snow are observed to blow during each month of the year in the several geographical dis-
United States.

from one to thirteen years—1871 to 1883, inclusive.]

June.	July.	August.	September.	October.	November.	December.
W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	SW. to NW.
NW. to NE.	N. to E.	W. to N.	W. to N.	W. to N.	W. to N.	W. to N.
W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	SW. to NW.	W. to N.
W. to N.	NW. to NE.	W. to N.	W. to N.	W. to N.	SW. to NW.	W. to N.
NW. to NE.	NW. to NE.	NW. to NE.	W. to N.	SW. to NW.	SW. to NW.	W. to N.
W. to N.	W. to N.	W. to N.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.
SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	S. to W.	S. to W.
N. to E.	N. to E.	N. to E.	W. to N	W. to N.	W. to N.	W. to N.
NW. to NE.	NW. to NE.	N. to E.	NW. to NE.	NW. to NE.	N. to E.	NW. to NE.
W. to N.	W. to N.	W. to N.	W. to N.	N. to E.	N. to E.	N. to E.
NW. to NE.	NW. to NE.	W. to N.	W. to N.	W. to N.	NW. to NE.	SW. to NW
SW. to NW.	SW. to NW.	SW. to NW.	N. to E.	SW. to NW.	NE. to SE.	S. to W.
W. to N.	N. to E.	SW. to NW.	S. to W.	S. to W.	S. to W.	S. to W.
N. to E.	N. to E.	SW. to NW.	E. to S.	E. to S.	E. to S.	E. to S.
SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	SW. to NW.	S. to W.	SW. to NW.
W. to N.	W. to N.	W. to N.	W. to N.	W. to N.	SW. to NW.	SW. to NW.
NW. to NE.	N. to E.	NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.	N. to E.
S. to W.	N. to E.	N. to E.	NE. to SE.	N. to E.	NW. to NE.	N. to E.
N. to E.	E. to S.	NE. to SE.	E. to S.	N. to E.	W. to N.	NW. to NE.
NE. to SE.	NE. to SE.	NE. to SE.	N. to E.	N. to E.	NW. to NE.	NW. to NE.
NW. to NE.	NW. to NE.	NW. to NE.	NW. to NE.	N. to E.	N. to E.	N. to E.
N. to E.	NW. to NE.	E. to S.	N. to E.	NE. to SE.	NW. to NE.	NW. to NE.

APPENDIX 76.

Meteorological summary for the year ending December 31, 1883.

ALBANY, N. Y.

[Latitude, 42° 39′ N.; longitude, 73° 45′ W. Magnetic variation, 9° W. Elevation of barometer above sea-level, 75 feet. Elevation of exposed thermometer above ground, 51 feet. Elevation of rain-gauge above ground, 70 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.122	30.009	30.118	30.113	30.572	4	29.441	21	1.131	20.7	26.1	23.1	23.3	46.0	31	Zero.	12	46.0	29.1	15.4	1,276	1,961	1,561	4,798	26	S.	13
Feb	30.154	30.141	30.167	30.154	30.696	24	29.504	7	1.192	25.3	32.5	28.4	28.7	47.0	17	9.6	24	37.4	35.1	20.8	1,376	1,990	1,629	4,995	22	W.	28
Mar	29.914	29.840	29.869	29.874	30.473	5	29.172	10	1.301	26.3	34.6	29.5	30.1	56.0	18	7.0	8	49.0	36.6	21.1	1,595	2,433	2,070	6,098	25	W., NW.	3 7 28
Apr	29.968	29.890	29.937	29.932	30.399	14	29.557	5	.842	42.4	53.6	45.8	47.3	70.0	10	23.0	1	47.0	54.5	38.7	1,222	1,925	1,471	4,618	21	S., NW.	19 25
May	29.905	29.849	29.887	29.880	30.296	2	29.464	20	.832	56.2	65.2	56.0	59.1	83.0	26	41.5	17	41.5	66.9	49.8	1,176	2,159	1,843	5,178	22	S.	11 26
June	29.915	29.853	29.886	29.885	30.413	2	29.368	11	1.045	69.0	78.0	69.0	72.0	88.0	10	52.3	1, 2	35.7	79.7	63.2	1,051	1,850	1,456	4,357	22	N.	6
July	29.912	29.834	29.875	29.874	30.149	21	29.598	7	.551	70.2	78.3	69.8	72.8	94.0	7	53.8	1	40.2	81.0	64.1	881	1,755	1,149	3,785	22	W.	2
Aug.....	29.984	29.914	29.961	29.953	30.280	15	29.673	2	.607	65.4	77.0	67.3	69.9	87.5	22	49.3	28	38.2	78.1	60.6	684	1,461	1,111	3,256	22	W.	19
Sept	30.041	29.976	29.993	30.003	30.433	10	29.277	25	1.156	56.6	68.1	59.0	61.2	80.0	21	41.7	10	38.3	60.2	52.2	828	1,368	1,024	3,220	20	NW., W.	3, 25
Oct	30.131	30.064	30.099	30.098	30.637	17	29.188	29	1.449	47.0	56.4	49.3	50.9	77.0	14	32.6	16	44.4	58.1	43.1	1,015	1,688	1,359	4,062	26	S.	29
Nov	30.061	30.007	30.031	30.033	30.453	16	29.494	9	.959	40.4	48.2	43.3	44.0	67.5	22	22.0	29	45.5	50.7	37.3	1,356	1,914	1,484	4,754	22	NW.	12
Dec	30.039	29.997	30.015	30.017	30.703	23	29.260	27	1.443	27.8	33.9	31.4	31.0	55.0	8	—8.5	23	63.5	37.4	23.6	1,598	1,814	1,361	4,773	26	NW.	15
Sums..	360.146	359.464	359.838	359.816	......	....	......	....	......	547.3	651.9	571.9	590.3	....	....	......	....	....	676.4	489.9	14,058	22,318	17,518	53,894	....	....	....
																					Averages.						
Means.	30.012	29.955	29.986	29.985	30.703	*23	29.172	†10	......	45.6	54.8	47.7	49.2	94.0	‡7	—8.5	*23	....	56.4	40.8	1,171.5	1,859.8	1,459.8	......	....	....	....

* December. † March. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8-hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	27	6	3	1	21	7	17	11	0	2.43	0.50	5	8.0	7.7	6.7	7.5	12.9	12.6	13.7	13.1	71.4	56.4	67.0	64.9	3	10	18	14	15	30	0	
Feb	4	2	0	2	28	7	16	24	1	3.00	1.39	3	7.2	7.1	5.1	6.5	18.0	17.0	18.4	17.8	72.6	52.6	65.9	63.7	3	14	11	16	9	27	0	
Mar	19	6	1	1	17	7	24	18	0	1.77	0.85	10	7.8	5.8	4.3	5.8	15.9	16.1	17.9	16.6	63.7	47.5	61.5	57.6	6	17	8	8	10	28	0	
Apr	22	5	3	1	18	7	18	15	1	2.65	0.88	19, 20	6.0	6.2	5.4	5.9	30.4	29.8	32.9	31.0	63.2	42.6	61.5	55.8	7	11	12	13	0	4	0	
May	14	3	0	3	40	3	11	17	2	3.20	0.91	22	6.7	6.4	5.2	6.1	42.7	41.8	43.1	42.5	61.6	45.5	63.0	56.7	6	13	12	15	0	0	0	
June	8	5	0	5	43	8	14	6	1	6.30	2.96	6	6.4	6.6	6.1	6.4	58.4	58.2	58.7	58.4	69.6	52.2	70.7	64.2	5	12	13	14	0	0	0	
July	10	3	3	2	33	5	21	15	1	5.96	1.63	13	4.8	7.0	3.9	5.2	58.5	58.2	60.5	59.1	66.9	51.7	73.2	63.9	7	19	5	13	0	0	2	
Aug	10	4	7	0	28	3	21	16	4	3.69	1.83	23	3.9	6.3	1.7	4.0	55.3	53.5	54.9	54.6	70.3	46.7	65.8	60.8	13	14	4	5	0	0	0	
Sept	21	3	6	0	27	6	18	12	2	3.19	1.04	24	6.1	7.1	5.2	6.1	48.8	47.8	49.3	48.5	74.2	50.2	71.0	65.1	6	13	11	9	0	0	0	
Oct	21	10	4	1	32	6	7	11	1	3.49	1.70	2	6.4	5.4	4.5	5.4	38.3	38.0	39.2	38.5	73.2	52.9	69.2	65.1	9	12	10	10	0	0	0	
Nov	15	2	2	0	44	0	17	10	0	1.14	0.38	26	6.5	6.6	5.2	6.1	31.7	32.6	33.9	32.7	71.2	56.1	69.5	65.6	5	12	13	12	0	9	0	
Dec	22	11	3	0	25	8	8	16	0	2.55	0.57	27, 28	6.8	6.0	7.9	6.9	20.8	23.0	23.3	22.4	74.2	64.1	71.7	70.0	5	10	16	17	8	24	0	
Sums ..	193	60	32	16	356	67	187	171	13	39.37	....	......	76.1	78.2	61.2	71.9	431.2	428.6	445.8	435.2	832.1	618.5	809.5	753.4	75	157	183	146	42	122	2	
	Percentages.																								Percentages.							
Means .	17.6	5.5	2.9	1.5	32.5	6.1	17.1	15.6	1.2	.....	....	......	6.3	6.5	5.1	6.0	35.9	35.7	37.2	36.3	69.3	51.5	67.5	62.8	20.5	43.0	36.4	40.0	11.5	33.4	0.5	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.13 a. m., 3.13 p. m., and 11.13 p. m., local time.
Correction for instrumental error of barometer used: From 7.13 a. m., January 1, to 11.13 p. m., December 31, inclusive, +.019 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.090; February, 0.090; March, 0.090; April, 0.080; May, 0.080; June, 0.080; July, 0.080; August, 0.080; September, 0.080; October, 0.080; November, 0.080; December, 0.090.

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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

ALPENA, MICH.

[Latitude, 45° 5′ N.; longitude, 83° 30′ W. Magnetic variation, 1° W. Elevation of barometer above sea-level, 609 feet. Elevation of exposed thermometer above ground, 54 feet. Elevation of rain-gauge above ground, 52 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.382	29.346	29.360	29.366	29.880	4	28.750	13	1.130	10.8	18.7	13.3	14.3	38.0	18	−22.0	26	60.0	21.3	3.6	2,428	2,940	2,775	8,143	39	S.	12
Feb	29.479	29.458	29.460	29.466	29.937	2	28.837	16	1.100	11.4	21.0	15.9	16.1	50.0	16	−15.0	10	65.0	25.0	5.7	2,147	2,609	2,566	7,322	35	W.	17
Mar	29.331	29.266	29.311	29.303	29.817	4	28.565	17	1.252	12.1	25.8	17.3	18.4	55.0	1	− 8.0	8, 20	63.0	29.4	5.9	2,093	2,734	2,695	7,522	32	NW.	6
Apr	29.314	29.297	29.311	29.307	29.612	1, 2	28.611	11	1.001	32.4	39.6	33.4	35.1	65.0	9, 15	2.0	1	63.0	43.5	27.0	1,522	2,579	2,115	6,216	32	SW.	15
May	29.287	29.261	29.282	29.277	29.553	1	28.858	19	.695	42.5	48.7	42.7	44.6	71.0	25	22.0	1	49.0	54.1	36.3	1,712	3,045	2,787	7,544	28	SE.	{17 19 24
June	29.245	29.222	29.223	29.230	29.671	1	28.826	18	.845	57.4	62.0	56.8	58.7	80.0	16, 18	34.0	1	46.0	67.8	51.6	1,471	2,610	1,984	6,065	32	SE.	3
July	29.289	29.281	29.272	29.281	29.575	19	28.893	12	.682	60.7	68.0	60.8	63.2	84.0	1	45.0	9	39.0	71.5	54.8	1,421	2,530	2,276	6,227	34	SE.	16
Aug.....	29.392	29.366	29.374	29.377	29.669	14	28.972	20	.697	57.0	69.0	59.2	61.7	87.0	22	40.0	15, 27	47.0	71.9	51.0	1,381	2,356	2,227	5,964	32	W.	22
Sept.....	29.424	29.398	29.409	29.410	29.812	9	28.727	24	1.085	49.3	58.6	50.5	52.8	73.0	6	29.3	30	43.7	61.5	43.9	1,535	2,355	2,083	5,973	27	NW.	25
Oct......	29.473	29.442	29.464	29.460	30.022	16	28.654	29	1.368	38.8	48.2	41.0	42.7	74.0	9	26.3	24	47.7	49.7	35.1	1,870	2,547	2,448	6,865	32	SE.	17
Nov	29.331	29.297	29.330	29.319	29.873	28	28.809	13	1.064	30.6	37.6	32.5	33.6	57.0	5, 6	2.3	16	54.7	40.6	26.8	2,316	2,705	2,593	7,614	38	W.	11
Dec	29.332	29.323	29.354	29.336	29.829	22	28.860	17	.969	21.2	25.9	22.6	23.2	52.0	7	− 0.3	22	52.3	30.4	17.7	2,092	2,886	2,473	7,451	34	SE.	23
Sums..	352.279	351.957	352.159	352.132	......	....	......	....	......	424.2	523.1	446.0	464.4	....	......	......	......	....	566.7	359.4	21,988	31,896	29,022	82,906	...	....	....
																					Averages.						
Means.	29.357	29.330	29.347	29.344	30.022	*9	28.565	†17	......	35.4	43.6	37.2	38.7	87.0	‡22	−22.0	§26	....	47.2	30.0	1,832.3	2,658	2,418.5	......	...	....	....

* October. † March. ‡ August. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 8 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	3	3	8	9	10	10	40	8	2	2.19	0.65	17	6.6	6.4	5.8	6.3	4.7	10.6	7.8	7.7	76.0	70.1	78.2	74.8	5	16	10	17	29	31	0	
Feb	2	3	6	7	7	9	44	4	2	2.02	0.50	16	6.0	5.8	5.8	5.7	5.3	11.9	10.7	9.3	76.4	68.6	79.9	75.0	6	14	8	19	22	27	0	
Mar	3	6	5	11	4	9	20	30	5	0.66	0.20	26	5.0	6.0	4.8	5.3	5.7	14.4	10.7	10.3	74.8	61.8	74.9	70.5	9	13	9	11	18	31	0	
Apr	12	6	14	19	7	7	9	11	5	1.72	0.64	14, 15	6.5	5.6	4.8	5.6	25.2	25.5	25.6	25.4	75.1	59.8	73.7	69.5	7	12	11	10	1	20	0	
May	7	8	14	18	5	3	19	13	6	4.56	1.85	9, 10	6.1	7.4	5.6	6.4	34.3	35.3	35.1	34.9	73.1	63.6	75.6	70.8	4	15	12	16	0	7	0	
June....	7	4	8	25	7	8	14	9	8	5.47	1.55	11	5.7	6.0	6.0	5.9	50.6	51.4	51.1	51.0	79.0	71.8	82.5	77.8	6	12	12	12	0	a0	0	
July	6	3	7	18	14	6	29	10	0	5.85	1.57	6, 7	5.8	5.5	4.9	5.4	53.6	55.3	55.2	54.7	78.4	65.8	82.5	75.6	6	14	11	17	0	b0	0	
Aug	1	3	3	14	6	3	40	19	4	1.36	0.41	12	2.0	4.1	2.9	3.0	50.4	51.9	50.8	51.0	79.2	58.0	75.0	70.7	16	12	3	5	0	0	0	
Sept	2	5	10	16	5	10	19	20	3	2.45	0.79	24	5.3	6.1	3.3	4.9	45.4	46.0	44.8	45.4	86.5	65.3	81.1	77.6	10	12	8	12	0	2	0	
Oct	6	8	12	15	9	6	16	20	1	3.38	1.14	8	5.7	7.2	5.0	6.0	34.5	36.1	34.2	34.9	84.7	63.2	77.6	75.8	4	17	10	13	0	10	0	
Nov	2	1	0	12	14	19	30	12	0	3.46	1.04	5, 6	6.6	7.2	4.9	6.2	26.6	29.4	28.0	28.0	85.2	72.8	83.5	80.5	3	17	10	16	6	18	0	
Dec	2	5	1	8	11	20	32	14	0	2.20	0.50	30	8.2	7.2	6.9	7.4	16.1	17.7	16.7	16.8	80.4	71.4	78.2	76.7	2	14	15	17	14	28	0	
Sums ..	53	55	88	172	99	110	312	170	36	35.32	....	......	69.5	74.5	60.2	68.1	352.4	385.4	370.7	369.4	949.4	794.2	942.7	895.3	78	168	110	165	90	174	0	
	Percentages.																								Percentages.							
Means .	4.8	5.0	8.3	15.7	9.0	10.0	28.4	15.5	3.3	....	....	......	5.8	6.2	5.0	5.7	29.4	32.1	30.9	30.8	79.1	66.2	78.6	74.6	21.4	46.0	32.6	45.0	24.7	48.9	0	

a Seven 11 p. m. observations missed. *b* Two 11 p. m. observations missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.34 a. m., 2.34 p. m., and 10.34 p. m., local time.

Correction for instrumental error of barometer used: From 6.34 a. m., January 1, to 10.34 p. m., December 31, inclusive, +.006 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.710; February, 0.710, March, 0.700; April, 0.690; May, 0.660; June, 0.650; July, 0.640; August, 0.640; September, 0.650; October, 0.670; November, 0.700; December, 0.710.

JAMES J. FITZGERALD,
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APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

APACHE, FORT, ARIZ.

[Latitude, 33° 48′ N.; longitude, 109° 57′ W. Magnetic variation, 13° 30′ E. Elevation of barometer above sea-level, 5,050 (B.) feet. Elevation of exposed thermometer above ground, 5 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In	In.	In.		In.		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles	Miles.			
Jan	25.083	25.049	25.059	25.064	25.349	23	24.639	19	.710	19.9	44.2	31.5	31.9	63.0	31	−6	20, 21	69.0	49.8	17.3	1,225	1,259	2,095	4,579	40	SW.	16
Feb	25.045	25.006	25.034	25.028	25.399	17	24.651	15	.748	28.9	50.7	38.2	39.3	66.0	20	Zero.	17	66.0	54.7	25.0	996	1,702	2,375	5,073	36	NE.	17
Mar	25.035	24.984	25.010	25.010	25.261	1	24.736	23	.525	36.6	59.2	46.7	47.5	75.0	26	27.0	20	48.0	62.5	34.2	1,127	1,530	2,373	5,030	28	SW.	30
Apr ..	24.929	24.912	24.931	24.924	25.329	15	24.605	20	.724	32.8	63.0	48.2	48.0	78.0	18	15.0	14	63.0	68.3	30.0	1,285	2,347	3,473	7,105	38	SW.	20
May ...	25.066	24.971	24.973	24.983	25.199	20	24.838	7	.361	39.5	73.1	56.5	56.4	90.0	27	29.0	4, 9	61.0	77.9	37.6	1,134	2,153	3,323	6,610	34	SE.	16
June ...	25.045	25.007	24.998	25.017	25.156	30	24.830	8	.326	49.2	85.5	72.3	69.0	101.0	25, 27	38.0	2, 15	63.0	91.8	48.5	1,224	1,621	3,096	5,941	32	SW.	15
July ...	25.108	25.076	25.081	25.088	25.211	18	24.965	3	.246	59.5	81.6	69.8	70.3	97.0	17	51.0	16	46.0	87.4	57.8	991	1,388	2,330	4,709	28	W.	12
Aug ...	25.138	25.106	25.114	25.119	25.229	28	25.005	11	.224	57.8	81.5	68.8	69.4	92.0	18, 14	50.0	30	42.0	86.3	56.7	1,033	1,148	1,957	4,138	(1)	(1)	(1)
Sept	25.112	25.067	25.074	25.084	25.245	5	24.866	13	.379	48.4	80.6	62.5	63.8	96.0	2	37.0	25	59.0	84.6	47.3	678	1,327	1,603	3,608	(1)	(1)	(1)
Oct	25.000	24.970	24.990	24.987	25.215	31	24.759	2	.456	38.1	65.0	48.6	50.6	79.0	1, 2	22.7	30	56.3	68.7	36.2	840	1,407	2,016	4,263	27	SW.	16
Nov	25.061	25.022	25.051	25.045	25.294	30	24.705	19	.499	26.5	58.2	38.6	41.1	72.0	2	16.0	26	56.0	61.9	23.5	819	1,097	1,844	3,760	30	SW.	4
Dec	25.047	25.033	25.063	25.048	25.304	8	24.810	4	.494	31.1	48.9	36.7	38.9	61.5	27	15.0	8, 10	46.5	52.2	27.1	972	1,329	1,847	4,148	29	NE.	7
Sums..	300.609	300.203	300.378	300.397	......	..	......	....	....	408.3	791.5	618.4	626.2	......					846.1	441.2	12,324	18,308	28,322	58,954	..	......	....
																					Averages.						
Means	25.051	25.017	25.032	25.033	25.399	[2]17	24.605	[3]20	......	39.0	66.0	51.5	52.2	101.0	[4]25, 27	−6	[5]20, 21	....	70.5	36.8	1027.0	1525.7	2360.2	......	....	......	....

[1] Register unserviceable. [2] February. B. Elevation determined by barometer. [3] April. [4] June. [5] January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).				Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
											Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.								
1883.										In.	In.						°	°	°	°												
Jan ...	0	41	16	3	0	12	21	0	0	.85	.25	3, 4	3.0	3.9	3.0	3.3	12.1	30.1	24.9	22.4	71.1	60.7	76.2	69.3	10	8	7	6	1	0	0	
Feb ...	3	24	10	7	3	29	6	0	2	2.46	.87	12, 13	5.1	5.4	3.5	4.7	22.1	30.4	31.2	27.9	75.6	51.1	76.8	67.8	10	11	7	10	0	0	0	
Mar. ..	1	33	10	17	0	23	5	3	1	2.03	.54	7	4.6	5.8	3.6	4.7	31.3	37.3	38.9	35.8	80.5	48.9	75.3	68.2	12	12	7	13	0	1	0	
Apr....	1	29	14	2	2	37	4	1	0	.22	.07	6, 13	1.2	2.4	1.4	1.7	23.0	22.7	25.0	23.6	67.1	23.2	42.1	44.1	23	7	0	5	0	8	0	
May ...	0	31	24	2	1	32	3	0	0	.86	.66	16, 17	1.5	2.4	1.5	1.8	28.3	28.5	29.8	28.9	64.2	22.5	39.0	41.9	24	4	3	5	0	3	0	
June ..	0	22	27	2	0	28	7	4	0	.02	.02	29	0.7	1.0	0.7	0.8	34.4	33.6	36.6	34.9	57.3	16.4	28.8	34.2	28	2	0	1	0	0	15	
July ...	0	14	31	7	0	28	11	2	0	5.46	.97	22	3.7	4.6	5.0	4.4	52.2	52.6	55.8	53.5	77.6	39.6	64.1	60.4	11	14	6	20	0	0	8	
Aug ..	1	20	30	14	1	18	8	1	0	4.26	2.59	3, 4	2.0	4.8	4.2	3.7	53.3	56.7	57.2	55.7	85.3	43.7	67.8	65.6	15	12	4	20	0	0	4	
Sept ...	0	15	25	17	1	21	4	0	7	0.60	.26	6, 7	1.0	2.9	2.2	2.0	39.1	43.0	43.1	41.7	70.9	27.4	51.6	50.0	18	12	0	6	0	0	4	
Oct	0	21	16	9	4	25	4	3	11	1.39	.77	16	3.2	3.3	1.8	2.8	30.8	35.3	33.5	33.2	74.9	36.5	57.9	56.4	16	12	3	6	0	10	0	
Nov ...	0	17	27	17	2	13	14	0	0	.02	.02	6	0.5	2.1	0.2	0.9	19.4	29.2	24.8	24.5	73.7	34.2	57.2	55.0	27	3	0	1	0	25	0	
Dec....	1	21	17	21	7	22	3	1	0	3.48	1.15	21, 22	3.2	4.1	3.1	3.5	25.8	31.8	30.0	29.2	79.8	54.7	76.9	70.5	17	8	6	9	0	22	0	
Sums..	7	288	247	118	21	288	90	15	21	21.65	....	.....	29.7	42.7	30.2	34.3	371.8	431.2	430.8	411.3	878.0	458.9	713.7	683.4	217	105	43	102	1	39	31	
	Percentages.																								Percentages.							
Means.	.6	26.3	22.6	10.8	1.9	26.3	8.2	1.4	1.9	.....	....	.....	2.5	3.6	2.5	2.9	31.0	35.9	35.9	34.3	73.2	38.2	59.5	57.0	59.5	28.8	11.7	27.9	.3	8.1	8.5	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.48 a. m., 12.48 m., and 8.48 p. m., local time.

Correction for instrumental error of barometer used: From 4.48 a. m., January 1, to 8.48 p. m., December 31, inclusive, +.008 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 5.12; February, 5.10; March, 5.02; April, 4.92; May, 4.82; June, 4.75; July, 4.74; August, 4.72; September, 4.80; October, 4.90; November, 5.10; December, 5.08.

JOHN B. TURTON,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

ASSINABOINE, FORT, MONT.

[Latitude, 48° 32′ N.; longitude, 109° 42′ W. Magnetic variation, 20° 30′ E. Elevation of barometer above sea-level, 2,710 (B.) feet. Elevation of exposed thermometer above ground, 5 feet. Elevation of rain-gauge above ground, 21 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 a. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	27.168	27.197	27.190	27.185	27.729	18	26.609	11	1.120	3.0	7.3	4.5	4.9	41	8	—43	19	84	14.2	—5.5	2,774	2,967	2,475	8,216	52	SW.	8
Feb	27.289	27.293	27.280	27.287	27.712	1	26.805	10	.907	4.8	13.3	10.4	9.5	41	{19 22 28}	—47	3	88	18.7	—1.5	3,065	3,066	2,918	9,049	40	SW.	4, 5
Mar	27.242	27.212	27.242	27.232	27.688	2	26.613	17	1.075	23.4	33.1	28.7	28.4	58	17	6	27	52	37.8	19.8	2,304	2,552	2,467	3,723	54	W.	17
Apr	27.072	27.058	27.058	27.063	27.687	24	26.513	20	1.174	32.9	50.0	42.0	41.6	70	28	16	4, 5	54	52.5	31.5	3,130	2,684	2,767	7,581	48	W.	15
May	27.160	27.134	27.137	27.144	27.441	19	26.728	17	.713	40.3	57.7	50.5	49.5	75	20	21	2	54	61.2	39.0	2,238	2,636	3,218	8,092	52	W.	31
June	27.137	27.121	27.096	27.118	27.423	8	26.877	10	.546	52.2	71.6	64.3	62.7	101	29	31	1	70	75.3	50.6	2,217	2,628	2,976	7,821	44	W.	4
July	27.210	27.180	27.177	27.189	27.448	26	26.857	13	.591	58.7	77.9	66.9	66.2	93	9	42	16	51	81.3	52.1	2,109	2,477	3,425	8,011	52	NW.	2
Aug	27.209	27.192	27.191	27.197	27.388	27	26.861	20	.527	56.1	76.0	65.8	66.0	90	28	38	22	52	79.6	54.3	2,266	2,652	2,724	7,642	52	SW.	16
Sept	27.282	27.255	27.242	27.260	27.822	20	26.938	18	.884	43.9	65.1	53.6	54.2	83	18	28	30	55	67.9	42.2	1,870	1,995	2,349	6,214	32	W.	14
Oct	27.131	27.132	27.132	27.132	27.557	10	26.562	27	.995	33.4	45.1	38.2	38.9	62	5	22	24, 31	40	47.7	31.1	1,972	2,516	2,545	7,033	44	W.	29
Nov	27.111	27.091	27.115	27.106	27.764	13	26.611	20	1.153	21.6	31.6	25.2	26.1	62	1	—23	25	85	37.0	15.4	2,976	3,054	3,166	9,196	50	SW.	6
Dec	27.150	27.189	27.179	27.173	27.767	14	26.442	25	1.325	20.9	25.1	21.0	22.3	51	10, 11	—17	30	68	31.0	14.0	2,973	3,118	2,634	8,725	48	SW.	27
Sums	326.161	326.054	326.039	326.036	......	....	......	....	......	386.2	553.8	471.1	470.3	...	......	......	......	....	604.2	343.0	28,894	32,345	33,664	94,903	....	....	......
																					Averages.						
Means	27.180	27.171	27.170	27.174	27.822	*20	26.442	†25	......	32.2	46.2	39.3	39.2	101	‡29	—47	§3	....	50.4	28.6	2,407.8	2,695.4	2,805.3	......	....	....	......

* September. † December. B.—Elevation determined by barometer. ‡ June. § February,

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	6	19	3	0	3	34	14	6	8	2.47	.91	6	6.5	6.6	5.6	6.2	—6.6	—3.0	—5.0	— 4.9	63.5	62.3	64.0	63.3	3	17	11	12	25	29	0	
Feb	1	10	0	0	3	59	6	4	1	.72	.63	5	3.8	3.5	3.0	3.4	—5.9	2.4	—0.8	— 1.4	59.8	60.6	59.7	60.0	15	9	4	6	21	28	0	
Mar	2	25	10	2	6	29	11	4	4	1.61	.87	24	5.1	5.6	6.0	5.6	15.8	22.5	20.1	19.8	70.4	65.2	69.8	68.5	10	9	12	12	9	27	0	
Apr	2	18	9	5	11	24	12	6	3	.43	20	20, 21	3.5	4.4	4.5	4.1	24.5	25.7	28.7	26.3	70.7	42.5	60.7	58.0	9	16	5	8	3	12	0	
May	3	11	18	9	14	21	8	8	1	.65	.23	24, 25	5.7	6.0	5.2	5.6	31.4	34.4	35.8	33.9	70.6	45.5	59.5	58.5	6	14	11	7	0	6	0	
June	10	8	4	5	18	25	14	10	1	.77	.30	20	3.9	3.9	3.4	3.7	40.6	42.7	46.3	43.2	65.8	39.7	53.9	53.1	15	8	7	6	0	1	6	
July	11	4	12	1	15	21	23	6	0	.24	.23	15	2.3	3.3	3.5	3.0	39.5	43.1	44.1	42.2	60.9	31.8	46.3	46.3	15	14	2	2	0	0	4	
Aug	6	11	15	3	11	25	10	11	1	2.59	1.26	10, 11	3.7	2.3	3.2	3.1	44.1	45.1	45.5	44.9	66.1	36.6	50.3	51.0	16	13	2	3	0	0	0	
Sept	6	16	12	4	19	22	7	3	1	.65	.63	1	2.6	3.5	1.7	2.6	36.0	37.3	37.5	36.9	74.0	38.9	56.3	56.4	16	13	1	3	0	2	0	
Oct	5	12	9	2	14	27	11	11	2	.98	.35	18	5.6	5.0	3.6	4.7	25.9	28.8	28.6	27.8	74.2	57.3	68.9	66.8	10	12	9	11	0	16	0	
Nov	4	8	1	8	2	50	5	17	0	3.76	1.49	24, 25	5.6	5.4	5.9	5.6	12.9	17.6	15.1	15.2	70.8	59.3	66.7	65.6	5	16	9	11	8	25	0	
Dec	7	16	4	0	0	55	2	7	2	.23	.06	.21	3.9	3.4	4.1	3.8	11.9	14.3	11.3	12.5	68.7	64.8	67.6	67.0	13	13	5	9	12	25	0	
Sums..	63	153	97	34	116	392	123	93	24	15.10	....	......	52.2	52.9	49.7	51.4	269.6	310.9	307.2	295.9	815.5	604.5	723.7	714.5	133	154	78	90	78	171	10	
	Percentages.																								Percentages.							
Means .	5.8	14.0	8.9	3.1	10.6	35.8	11.2	8.5	2.2	.....	....	......	4.4	4.4	4.1	4.3	22.5	25.9	25.6	24.7	68.0	50.4	60.3	59.6	36.4	42.2	21.4	24.7	21.4	46.8	2.7	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.49 a. m., 12.49 p. m., and 8.49 p. m., local time.

Correction for instrumental error of barometer used: From 4.49 a. m., January 1, to 8.49 p. m., December 31, inclusive, +.013 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 3.04; February, 3.04; March, 3.01; April, 2.90; May, 2.84; June, 2.79; July, 2.73; August, 2.75; September, 2.85; October, 2.92; November, 2.98; December, 3.08.

F. NEWMAN,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

ATLANTA, GA.

[Latitude, 33° 45′ N.; longitude, 84° 23′ W. Magnetic variation, 4° 15′ E. Elevation of barometer above sea-level, 1,129 feet. Elevation of exposed thermometer above ground, 57 feet. Elevation of rain-gauge above ground, 76 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.001	28.962	28.997	28.987	29.437	23	28.515	9	.922	38.4	46.5	42.2	42.4	63.8	28	14.2	12	49.6	50.7	35.4	2,230	2,368	2,179	6,777	34	W.	20
Feb	29.106	29.071	29.101	29.093	29.444	27	28.861	7	.583	45.1	55.1	49.2	49.8	74.5	16	28.0	27	46.5	58.2	42.1	1,900	2,060	2,076	6,036	30	NE.	24
Mar	28.902	28.840	28.875	28.872	29.300	1	28.512	19	.788	43.0	56.8	49.1	49.6	75.0	30	27.0	16	48.0	50.4	40.9	2,401	2,836	2,483	7,720	32	W.	10
Apr	28.865	28.823	28.845	28.844	29.143	3	28.455	23	.688	55.6	67.9	60.0	61.2	83.0	13	36.5	3	46.5	71.2	52.0	1,458	1,547	1,401	4,406	26	S. SW.	6, 9
May	28.900	28.845	28.871	28.872	29.122	25	28.456	20	.666	61.5	74.6	64.9	67.0	84.0	8, 9	39.5	23	44.5	76.7	57.4	1,860	1,976	2,095	5,931	32	W.	15
June	28.908	28.864	28.888	28.887	29.106	2	28.695	25	.411	71.5	82.2	74.0	75.9	90.6	18	55.7	1	34.9	84.6	68.2	1,455	1,737	1,707	4,899	33	SW.	12
July	28.973	28.919	28.946	28.946	29.218	22	28.775	12	.443	74.4	87.1	77.9	79.8	95.0	17	63.5	10	31.5	89.4	70.8	1,427	1,693	1,805	4,925	24	W.	28
Aug	28.933	28.885	28.916	28.911	29.066	31	28.735	29	.331	69.7	82.5	73.1	75.1	91.2	1	60.0	30, 31	31.2	85.0	67.4	1,091	1,315	1,379	3,785	26	NW.	1
Sept	28.938	28.884	28.913	28.912	29.119	27	28.714	21	.405	64.3	78.1	70.1	70.8	90.0	4	52.0	25	38.0	79.9	62.7	1,562	1,425	1,559	4,546	26	NE.	10
Oct	28.974	28.920	28.962	28.952	29.222	16	28.611	29	.611	59.3	72.3	64.2	65.3	86.0	14	44.0	26	42.0	74.4	57.7	2,129	2,021	1,888	6,038	28	NW.	29
Nov	29.058	29.005	29.039	29.034	29.361	17	28.831	9	.530	47.7	60.3	52.8	53.6	76.5	10	20.0	16	56.5	61.8	45.4	2,346	2,278	2,092	6,716	32	N.	16
Dec	28.991	28.965	28.995	28.984	29.195	10	28.636	27	.559	42.7	54.6	46.8	48.0	65.0	5, 30	21.8	16	43.2	56.8	39.2	2,478	2,461	2,244	7,183	33	W.	27
Sums	347.549	346.963	347.348	347.294	......	....	......	....	......	673.2	818.0	724.3	738.5	.....	....	.....	.....	....	848.1	639.2	22,337	23,717	22,908	68,962	....	....	....
																					Averages.						
Means.	28.962	28.915	28.946	28.941	29.444	*27	28.455	†23	......	56.1	68.2	60.4	61.5	95.0	‡17	14.2	§12	....	70.7	53.3	1,861.4	1,976.4	1,909.0	......	....	....	....

* February. † April. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	2	5	18	14	2	6	16	28	2	15.82	4.03	6	5.9	5.4	5.2	5.5	34.1	35.7	35.7	35.2	84.8	69.7	78.9	77.8	8	11	12	17	0	11	0	
Feb	2	10	16	9	4	5	6	31	1	3.22	0.68	17, 18	5.1	7.0	4.2	5.4	40.4	43.1	41.3	41.6	84.6	69.1	77.0	76.9	8	12	8	17	0	2	0	
Mar	6	3	3	0	3	20	28	28	2	3.73	1.52	30, 31	4.5	4.6	3.9	4.3	35.0	36.2	38.2	36.5	74.2	50.8	67.4	64.1	14	9	8	12	0	2	0	
Apr	3	4	10	14	8	12	5	25	9	8.20	3.08	9	5.4	5.5	3.6	4.8	49.3	50.1	49.6	49.7	80.0	56.3	70.8	69.0	8	15	7	12	0	0	0	Nov. 3, first light frost of the season.
May	8	2	4	13	18	10	21	16	1	2.00	0.99	1	3.8	3.8	2.8	3.4	53.8	52.8	53.1	53.2	76.6	48.8	67.1	64.2	17	10	4	8	0	0	0	
June.....	3	3	13	7	11	21	6	18	8	2.31	0.82	7, 8	6.0	5.2	2.3	4.5	65.8	63.8	66.0	65.2	82.7	55.8	77.0	71.8	7	18	5	12	0	0	2	Nov. 13, first killing frost of the season.
July	9	4	10	10	5	5	30	15	5	1.06	0.46	24	2.0	4.7	1.8	1.8	65.2	62.2	64.1	63.8	73.3	45.5	63.9	60.9	19	10	2	7	0	0	13	
Aug	14	7	17	9	0	5	8	20	13	2.73	0.80	15, 16	3.0	4.7	2.6	3.4	64.6	62.6	64.2	63.8	84.2	52.5	74.6	70.4	14	15	2	12	0	0	3	
Sept.....	9	8	16	9	4	4	17	18	5	1.38	0.42	23, 24	3.8	4.4	3.0	3.7	58.4	57.1	59.5	58.3	80.8	51.5	71.0	67.8	14	10	6	10	0	0	0	Mar. 23, last frost of the season.
Oct	5	9	28	13	4	8	8	16	2	1.52	1.06	22	4.1	4.6	3.2	4.0	55.9	55.7	55.3	55.6	89.1	58.7	75.1	74.3	13	12	6	8	0	0	0	
Nov	8	4	18	11	17	7	9	16	0	4.72	2.10	22, 23	4.0	4.4	2.2	3.5	38.7	40.4	40.7	39.9	72.7	52.9	66.7	64.1	15	11	4	9	0	4	0	
Dec......	7	2	10	19	6	7	7	35	0	4.84	1.27	8	3.8	4.4	4.2	4.2	36.4	37.3	36.9	36.9	79.1	56.3	70.8	68.7	13	12	6	14	0	5	0	
Sums ..	76	61	163	128	82	110	161	266	48	51.53	....	......	51.4	58.7	39.0	49.5	597.6	597.0	604.6	599.7	962.1	667.9	860.3	830.0	150	145	70	138	0	24	18	
	Percentages.																								Percentages.							
Means .	6.9	5.6	14.9	11.7	7.5	10.0	14.7	24.3	4.4	......	....	......	4.3	4.9	3.2	4.1	49.8	49.8	50.4	50.0	80.2	55.7	71.7	69.2	41.1	39.7	19.2	37.8	....	6.6	4.9	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.31 a. m., 2.31 p. m., and 10.31 p. m., local time.
Correction for instrumental error of barometer used: From 6.31 a. m., January 1, to 10.31 p. m., December 31, inclusive, +.605 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.230; February, 1.220; March, 1.210; April, 1.190; May, 1.170; June, 1.150; July, 1.150; August, 1.150; September, 1.170; October, 1.190; November, 1.220; December, 1.230.

S. W. BEALL,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

ATLANTIC CITY, N. J.

[Latitude, 39° 22′ N.; longitude, 74° 25′ W. Magnetic variation, 6° W. Elevation of barometer above sea-level, 13 feet. Elevation of exposed thermometer above ground, 10 feet. Elevation of rain-gauge above ground, 37 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.			Monthly mean.	Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.		Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.177	30.135	30.159	30.157	30.632	24	29.434	10	1.198	28.0	33.2	29.2	30.2	46.0	21, 31	5.2	12	40.8	36.0	22.8	2,378	2,626	2,238	7,242	37	N.	10
Feb	30.255	30.224	30.252	30.244	30.772	2	29.707	7	1.065	32.4	38.5	34.4	35.1	64.0	17	17.0	27	47.0	42.2	28.2	2,057	2,323	1,974	6,354	26	N.	12
Mar	29.986	29.907	29.956	29.950	30.485	3	29.136	10	1.349	31.5	39.9	33.5	35.0	61.0	15	11.0	8	50.0	42.5	26.5	2,346	3,088	2,615	8,049	32	NW., NE., S.	7 10 20
Apr	29.998	29.962	29.994	29.985	30.430	14	29.573	23	.857	44.2	48.2	44.1	45.5	63.0	6	27.0	1	36.0	51.3	39.4	2,082	2,818	2,466	7,366	35	NE.	23
May	29.973	29.925	29.947	29.948	30.354	1	29.420	21	.934	54.8	60.5	54.8	56.7	79.0	29	40.0	6	38.4	63.1	50.0	2,347	2,769	2,661	7,777	30	S.	26
June	29.994	29.962	29.976	29.977	30.463	2	29.628	11	.835	65.9	70.9	64.8	67.2	84.0	20	52.0	2	32.0	73.8	60.9	1,624	2,092	2,051	5,767	25	SE.	27
July	29.992	29.952	29.970	29.971	30.235	21	29.721	24	.514	70.8	78.3	69.8	73.0	94.0	23	57.0	1	37.0	80.0	65.6	1,635	2,240	2,094	5,969	27	E.	8
Aug	30.030	29.997	30.026	30.018	30.239	15	29.651	2	.588	68.0	75.1	68.5	70.5	91.0	21	55.0	31	36.0	76.6	63.3	1,692	2,636	1,945	6,273	27	S., NE.	2, 29
Sept	30.077	30.028	30.040	30.040	30.391	10	29.562	24	.829	62.0	69.4	63.9	65.1	80.0	30	45.0	10	35.0	71.1	57.9	2,152	2,727	2,551	7,430	40	NE.	12
Oct	30.155	30.099	30.137	30.130	30.597	17	29.422	29	1.175	53.2	59.5	54.0	55.6	75.0	2	39.8	25	35.2	60.9	48.8	2,215	2,658	2,210	7,083	37	NE.	23
Nov	30.171	30.115	30.139	30.142	30.636	17	29.711	11	.925	43.0	50.2	44.6	45.9	63.0	4	18.7	17	44.3	52.8	38.4	1,884	2,354	1,831	6,069	32	NW.	12
Dec	30.115	30.068	30.101	30.095	30.617	23	29.488	27	1.129	34.4	40.7	36.5	37.2	57.6	5	11.0	23	46.6	43.4	29.8	1,631	2,043	1,716	5,390	29	NW.	28
Sums ..	360.923	360.374	360.697	360.665	......	....	......	....	......	588.2	664.4	598.1	617.0	....	.....	.....	....	....	693.7	531.6	24,043	32,374	26,352	80,769	..	....	....
																					Averages.						
Means.	30.077	30.031	30.058	30.055	30.772	*2	29.136	†10	......	49.0	55.4	49.0	51.4	94	‡23	5.2	§12	....	57.8	44.3	2,003.6	2,697.8	2,196.0	......	...	....	....

* February. † March. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	25	12	2	5	6	9	9	23	2	5.43	0.81	10	7.3	7.1	6.4	6.9	21.6	24.4	23.2	23.1	77.7	71.1	78.7	75.8	4	12	15	19	8	27	0	
Feb	17	6	8	4	9	12	7	20	1	5.18	1.57	11	5.9	7.2	4.4	5.8	25.0	29.0	28.9	27.6	74.8	69.8	80.4	75.0	4	18	6	14	1	21	0	
Mar	13	10	5	9	12	10	13	21	0	3.09	1.20	10	4.7	5.5	3.2	4.5	24.5	28.8	26.8	26.7	75.5	66.5	76.7	72.9	10	16	5	11	2	21	0	First light frost, November 3. First heavy frost, November 8.
Apr	15	16	11	12	16	7	4	7	2	4.31	1.41	22	5.5	6.8	5.8	6.0	39.0	41.6	40.1	40.2	82.7	79.4	86.3	82.8	4	15	11	16	0	4	0	
May	10	13	16	13	17	9	8	7	0	1.78	0.90	15	4.0	5.2	4.7	4.6	48.6	49.9	50.5	49.7	81.1	71.3	86.4	79.6	10	15	6	8	0	0	0	
June.....	6	2	7	28	24	16	3	4	0	3.53	1.40	27	4.4	4.8	3.4	4.2	61.8	63.3	61.2	62.1	87.3	77.5	88.4	84.4	12	12	6	8	0	0	0	
July.....	11	1	8	7	22	23	11	10	0	2.83	0.95	8, 9	5.1	4.3	3.2	4.2	64.8	66.1	65.2	65.4	81.5	67.7	85.8	78.3	13	14	4	9	0	0	2	
Aug	13	16	14	9	9	10	14	7	1	3.21	1.54	2	4.4	4.2	2.8	3.8	61.1	63.2	62.4	62.2	79.2	67.0	81.2	76.0	13	14	4	6	0	0	1	
Sept	15	16	11	6	14	7	11	5	5	5.31	2.59	12	6.9	5.3	5.0	5.7	56.5	57.2	58.1	57.3	82.7	67.9	82.0	77.5	5	17	8	9	0	0	0	
Oct	25	20	10	12	8	3	5	5	5	6.18	3.36	23, 24	5.5	5.8	3.8	5.0	47.8	49.6	47.8	48.4	82.5	72.2	80.7	78.5	9	12	10	19	0	0	0	
Nov	15	5	6	3	10	17	10	16	8	1.25	0.41	26	4.7	4.9	2.8	4.1	35.1	37.4	38.0	36.8	74.5	63.2	78.3	72.0	11	13	6	7	0	9	0	
Dec......	21	4	3	4	6	14	10	29	2	2.54	0.72	24	6.1	5.9	4.8	5.6	28.8	31.2	30.9	30.3	79.7	70.3	80.4	76.8	7	12	12	12	3	18	0	
Sums ..	186	121	101	112	153	137	105	154	26	44.64	....	......	64.5	67.0	50.3	60.4	514.6	541.7	533.1	529.8	959.2	844.5	985.3	929.6	102	170	93	138	14	100	3	
	Percentages.																								Percentages.							
Means .	17.0	11.1	9.2	10.2	14.0	12.5	9.6	14.0	2.4	.....	....	......	5.4	5.6	4.2	5.1	42.9	45.1	44.4	44.1	79.9	70.4	82.1	77.5	27.9	46.6	25.5	37.8	3.8	27.4	0.8	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 7.11 a. m., 3.11 p. m., and 11.11 p. m., local time.

Correction for instrumental error of barometer used: From 7.11 a. m., January 1, to 11.11 p. m., December 31, inclusive, —.003 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.01; February, 0.01; March, 0.01; April, 0.01; May, 0.01; June, 0.01; July, 0.01; August, 0.01; September, 0.01; October, 0.01; November, 0.01; December, 0.01.

B. A. BLUNDON,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

AUGUSTA, GA.

[Latitude, 33° 28′ N.; longitude, 81° 54′ W. Magnetic variation, 2° 30′. Elevation of barometer above sea-level, 183 feet. Elevation of exposed thermometer above ground, 19 feet. Elevation of rain-gauge above ground, 39 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.039	29.987	30.036	30.021	30.492	23	29.428	9	1.064	44.4	55.4	47.7	49.2	70.0	28	19.6	12	50.4	57.7	39.9	484	832	730	2,046	24	SW.	6
Feb	30.140	30.090	30.126	30.119	30.444	27	29.855	7	.589	51.3	63.8	55.1	56.7	82.0	17	34.3	28	47.7	65.6	47.8	419	925	722	2,066	22	N.	18
Mar	29.920	29.839	29.882	29.880	30.315	1	29.474	31	.841	45.0	63.2	53.1	53.8	79.0	29	32.3	17	46.7	65.0	42.4	464	1,250	933	2 647	23	SW.	10
Apr	29.873	29.822	29.855	29.850	30.160	4	29.419	23	.741	58.0	73.0	62.5	64.5	87.0	13	41.7	3	45.3	74.4	55.1	741	1,337	1,004	3,082	30	N.	17
May	29.889	29.819	29.852	29.853	30.091	18	29.400	20	.691	63.4	79.7	68.4	70.5	91.0	15	43.0	23	48.0	81.6	59.9	583	1,237	981	2,801	24	NE.	1
June	29.888	29.819	29.860	29.856	30.107	4	29.641	26	.466	73.7	87.0	76.2	79.0	95.0	19	64.3	3	30.7	88.8	70.4	422	1,133	992	2.547	18	NE.	14
July	29.930	29.859	29.902	29.897	30.174	22	29.678	13	.501	77.5	91.8	80.8	83.4	100.0	17	71.7	1	28.3	93.0	74.8	337	1,188	1,058	2,583	25	NW.	28
Aug*	29.894	29.834	29.877	29.868	30.039	31	29.648	29	.391	74.1	87.7	77.9	79.9	96.0	21	63.0	8	33.0	89.0	71.8	395	1,131	803	2,329	21	NE.	8
Sept.....	29.912	29.841	29.889	29.881	30.109	27	29.679	11	.430	67.3	82.0	72.0	73.8	94.5	4	55.5	27	39.0	83.5	65.5	579	1,197	981	2,757	21	N.	10
Oct......	29.970	29.906	29.958	29.948	30.272	17	29.609	29	.663	62.0	76.3	66.2	68.2	92.0	3	49.0	31	43.0	77.3	60.6	771	1,455	1,162	3,388	18	N., NE., S.	12 29
Nov	30.086	30.013	30.060	30.053	30.455	16	29.805	14	.650	50.9	66.4	54.9	57.4	82.5	11	28.0	17	54.5	67.0	48.6	532	1,175	669	2,376	20	N.	27
Dec	30.028	29.970	30.023	30.007	30.214	10	29.666	14	.548	46.1	62.3	51.2	53.2	74.0	8	28.8	16	45.2	63.1	44.0	326	819	578	1,723	22	W.	27
Sums..	359.578	358.799	359.320	359.233	......	.....	....	....	......	713.7	888.6	766.0	789.6	.....	...	.....	....	....	906.0	680.8	6,053	13,679	10,613	30,345	....	....	....
																					Averages.						
Means.	29.965	29.900	29.943	29.936	30.492	†23	29.400	‡20	......	59.5	74.0	63.8	65.8	100.0	§17	19.6	†12	....	75.5	56.7	504.4	1,139.9	884.4	......	....	....	....

* One 7 a. m. observation missed. † January. ‡ May. § July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 8 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan......	6	12	3	7	5	3	11	17	29	7.00	1.18	18, 19	7.8	6.6	5.0	6.3	39.0	40.3	40.4	39.9	81.7	61.2	76.5	73.1	8	7	16	18	0	6	0	
Feb......	1	18	2	3	9	3	5	12	31	1.49	.86	24	7.1	6.8	4.4	6.1	45.8	48.7	47.6	47.4	82.1	62.3	77.4	73.9	6	10	12	12	0	0	0	
Mar	5	8	3	4	7	7	16	11	32	3.17	.92	25	5.9	5.4	3.3	4.9	37.8	36.6	40.1	38.2	76.8	42.0	63.6	60.8	9	15	7	18	0	0	0	
Apr	5	7	9	12	13	8	12	14	10	6.29	2.66	9, 10	6.3	5.9	3.5	5.2	51.9	50.6	54.0	52.2	80.6	49.5	74.8	68.3	8	13	9	11	0	0	0	
May	7	3	3	15	11	9	11	11	23	2.47	1.49	1	5.1	4.8	2.7	4.2	56.0	53.4	56.9	55.4	77.4	42.5	68.0	62.6	10	20	1	5	0	0	1	
June	2	10	5	16	11	13	9	6	18	5.85	1.53	7	5.7	6.2	4.1	5.3	68.0	67.2	69.6	68.3	83.1	58.6	80.5	72.4	8	16	6	13	0	0	9	
July	5	7	7	19	8	13	15	6	13	2.21	.84	9	3.0	5.9	2.8	3.9	69.4	67.1	70.3	68.9	76.7	46.1	71.4	64.7	10	17	4	9	0	0	22	
Aug	8	19	6	4	5	5	6	10	29	2.16	1.12	8	5.7	4.8	3.4	4.6	67.0	65.8	68.9	67.2	78.9	50.7	74.4	68.0	9	14	7	5	0	0	11	One 7 a. m. observation missed in Aug. First frost of the season, Nov. 2d.
Sept	10	19	2	12	4	3	3	4	33	1.25	.60	24	5.2	6.1	4.3	5.2	62.0	61.1	63.8	62.3	83.9	51.8	76.7	70.8	9	12	9	5	0	0	8	
Oct	8	32	7	3	2	4	6	7	24	1.69	1.49	22, 23	5.5	5.6	3.7	4.9	56.8	57.5	58.7	57.7	83.4	54.5	77.5	71.8	9	14	8	6	0	0	1	
Nov	15	9	8	11	0	6	7	10	29	3.73	2.36	24, 25	4.2	5.5	3.3	4.8	43.8	43.6	46.9	44.8	77.6	47.5	75.4	66.8	10	13	7	8	0	1	0	
Dec......	2	9	3	8	8	1	14	8	40	2.59	.76	27	4.5	5.4	4.1	4.7	40.9	43.9	42.6	42.5	82.0	53.9	74.0	70.0	10	16	5	8	0	2	0	
Sums ..	74	153	53	114	83	75	115	116	311	39.90	....	......	65.5	69.0	44.6	59.6	638.4	635.8	659.8	644.8	964.2	615.6	890.2	823.2	106	167	91	113	0	9	47	
	Percentages.																								Percentages.							
Means .	6.8	14.0	4.8	10.4	7.6	6.8	10.5	10.6	28.4	......	....	......	5.5	5.8	3.7	5.0	53.2	53.0	55.0	52.7	80.4	51.3	74.2	68.6	29.1	45.9	25.0	31.0	0	2.5	12.9	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.41 a. m., 2.41 p. m., and 10.41 p. m., local time.
Correction for instrumental error of barometer used: From 6.41 a. m., January 1, to 10.41 p. m., December 31, inclusive, —.004 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.200; February, 0.200; March, 0.200; April, 0.190; May, 0.190; June, 0.190; July, 0.190; August, 0.190; September, 0.190; October, 0.190; November, 0.200; December, 0.200.

LOUIS DUANE,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

BALTIMORE, MD.

[Latitude, 39° 18′ N.; longitude, 76° 37′ W. Magnetic variation, 3° 30′ W. Elevation of barometer above sea-level, 45 feet. Elevation of exposed thermometer above ground, 33 feet. Elevation of rain-gauge above ground, 69 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.189	30.151	30.181	30.174	30.618	24	29.576	10	1.042	30.2	35.2	31.5	32.3	50.0	31	11.0	23	39	37.6	25.7	896	1,403	1,172	3,471	22	NW.	14
Feb	30.269	30.238	30.259	30.255	30.767	2	29.690	7	1.077	36.1	42.9	38.4	39.1	64.0	4 17	22.0	27	42	46.6	31.7	1,116	1,652	1,286	4,054	22	NW.	4 12 26
Mar	30.016	29.922	29.983	29.974	30.525	8	29.330	10	1.195	34.4	45.1	38.6	39.4	65.0	18 19	16.0	8	49	47.7	30.4	1,135	2,028	1,590	4,753	28	NW.	11 20
Apr	30.017	29.953	30.005	29.992	30.414	14	29.597	23	.817	48.0	57.9	50.5	52.1	74.0	7	30.0	1	44	59.4	44.2	1,108	1,840	1,635	4,583	28	SW.	5
May	29.979	29.910	29.943	29.944	30.316	1	29.328	21	.988	59.1	71.0	61.8	64.0	86.0	8	45.0	1	41	72.3	54.8	1,236	2,031	1,726	4,993	23	SW.	26
June	29.970	29.921	29.951	29.947	30.441	2	29.639	11	.802	71.0	81.1	71.7	74.6	90.0	6	55.0	2	35	82.7	66.5	913	1,727	1,432	4,072	22	SW.	10
July	29.989	29.935	29.960	29.961	30.189	21	29.682	24	.507	73.5	83.4	73.5	76.8	96.0	22	62.0	1, 20	34	85.4	68.5	968	1,757	1,459	4,184	23	W.	7
Aug	30.030	29.981	30.016	30.009	30.243	15	29.653	2	.590	68.4	80.0	70.4	72.9	92.0	19 20	59.0	8, 31	33	80.7	65.0	956	1,706	1,199	3,861	20	SW.	2
Sept	30.071	30.009	30.033	30.038	30.416	10	29.536	24	.880	60.9	71.4	63.1	65.1	81.0	17	46.0	10	35	72.2	58.0	1,111	1,700	1,299	4,110	21	NE.	12
Oct	30.167	30.103	30.143	30.138	30.605	16	29.477	29	1.128	53.8	62.9	55.9	57.5	82.5	14	40.5	16	42	63.8	51.4	1,173	1,710	1,330	4,218	24	W.	30
Nov	30.188	30.120	30.147	30.152	30.638	17	29.734	9	.904	44.4	52.9	47.4	48.2	71.0	22	23.0	16	48	54.9	41.7	1,118	1,685	1,258	4,061	28	NW.	12
Dec	30.120	30.077	30.115	30.104	30.608	23	29.516	27	1.092	36.2	42.6	38.2	30.0	60.0	5	17.0	24	43	44.9	32.7	971	1,486	1,177	3,634	26	NW.	28
Sums..	361.005	360.320	360.736	360.688	......	....	......	....	.....	616.0	726.4	641.0	661.0	....	....	.....	....	....	748.2	570.6	12,701	20,725	16,563	49,989	....	....	....
																					Averages.						
Means.	30.084	30.027	30.061	30.057	30.767	*2	29.328	†21	......	51.3	60.5	53.4	55.1	96.0	‡22	11.0	§23	....	62.4	47.6	1,058.4	1,727.1	1,380.2	......	....	....	....

* February. † May. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	13	18	11	4	5	4	8	20	10	3.16	0.84	13, 14	7.6	7.7	5.3	6.9	23.3	25.3	25.0	24.5	75.5	68.5	76.9	73.6	4	11	16	19	8	23	0	November 13, first heavy frost. December 17, first snow.
Feb	10	7	10	6	6	7	12	23	3	4.69	1.31	10, 11	5.7	6.5	3.2	5.1	28.1	27.6	29.2	28.3	72.7	56.8	70.3	66.6	8	15	5	13	0	14	0	
Mar	16	3	4	11	3	11	8	25	12	3.68	1.74	10	5.2	4.7	3.2	4.4	23.5	25.7	25.7	25.0	64.2	48.2	60.0	57.5	12	11	8	8	1	16	0	
Apr	18	11	8	11	12	9	6	10	5	3.20	1.32	22, 23	5.4	6.3	5.6	5.8	38.3	39.9	41.7	40.0	70.8	53.8	72.7	65.8	6	16	8	15	0	1	0	
May	12	12	6	16	9	10	13	14	1	1.22	0.57	21, 22	4.7	4.9	2.9	4.2	47.1	46.9	49.7	47.9	65.9	44.8	66.1	58.9	12	13	6	9	0	0	0	
June	11	4	5	19	22	8	11	9	1	8.08	2.66	26, 27	4.5	4.9	4.9	4.8	62.2	61.5	63.3	62.3	74.8	53.5	76.0	68.1	8	17	5	16	0	0	0	
July	10	6	2	6	16	19	19	15	0	3.10	0.76	15	2.4	5.1	2.6	3.4	63.9	63.9	65.0	64.3	73.0	53.8	75.0	67.3	17	11	3	14	0	0	7	
Aug	25	10	15	3	10	8	8	12	2	2.72	1.28	29	3.7	4.1	2.4	3.4	57.8	57.2	61.0	58.7	70.2	48.2	72.8	63.7	18	9	4	7	0	0	2	
Sept	7	30	7	13	11	4	8	8	2	3.49	1.33	12, 13	5.9	5.4	4.3	5.2	54.1	55.4	54.8	54.8	78.8	59.7	75.2	71.2	8	13	9	9	0	0	0	
Oct	21	15	10	12	14	3	8	10	0	2.83	0.80	23	6.5	5.4	4.8	5.6	47.2	48.8	47.1	47.7	79.2	62.5	74.4	72.0	7	15	9	13	0	0	0	
Nov	17	6	4	14	12	9	13	15	0	1.37	0.76	26	4.0	4.5	4.1	4.2	33.9	36.7	36.9	35.8	67.2	56.8	68.5	64.2	14	8	8	10	0	4	0	
Dec	12	15	3	8	10	6	12	24	3	2.98	0.85	19	4.2	5.4	4.0	4.5	27.5	29.5	28.6	28.5	71.3	61.9	68.6	67.8	11	15	5	12	1	14	0	
Sums	172	137	85	123	130	98	126	185	39	40.52	....	......	59.8	64.9	47.3	57.5	506.9	518.4	528.0	517.8	863.6	668.5	856.5	796.2	125	154	86	145	10	72	9	
	Percentages.																								Percentages.							
Means	15.7	12.5	7.8	11.2	11.9	8.9	11.5	16.9	3.6	.....	....	......	5.0	5.4	3.9	4.8	42.2	43.2	44.0	43.1	72.0	55.7	71.4	66.4	34.2	42.2	23.6	39.7	2.7	19.7	2.5	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.02 a. m., 3.02 p. m., and 11.02 p. m., local time.
Correction for instrumental error of barometer used: From 7.12 a. m., January 1, to 11.02 p. m., December 31, inclusive, +.025 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.050; February, 0.050; March, 0.050; April, 0.050; May, 0.050; June, 0.050; July, 0.050; August, 0.050; September, 0.050; October, 0.050; November, 0.050; December, 0.050.

GEO. W. FELGER,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883.*—Continued.

BARNEGAT CITY, N. J.

[Latitude, 39° 46′ N.; longitude, 74° 6′ W. Magnetic variation, 6° W. Elevation of barometer above sea-level, 22 feet. Elevation of exposed thermometer above ground, 7 feet. Elevation of rain-gauge above ground, 39 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.												Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.170	30.138	30.161	30.156	30.623	24	29.410	10	1.213	28.8	33.3	30.3	30.8	48.0	31	6.4	24	41.6	36.4	24.3	3,904	4,130	3,671	11,705	52	NE.	10
Feb	30.253	30.228	30.250	30.244	30.784	2	29.684	7	1.100	32.4	38.6	34.7	35.2	60.0	17	17.0	2	43.0	41.7	28.5	3,361	3,751	3,360	10,472	52	NW.	12
Mar	29.990	29.905	29.961	29.952	30.471	8	29.128	10	1.343	32.7	40.4	34.9	36.0	62.0	15	12.0	8	50.0	43.1	28.6	3,833	4,566	4,044	12,443	46	NW.	20
Apr	30.002	29.967	29.997	29.989	30.444	14	29.598	23	.846	45.3	47.9	44.8	46.0	61.3	27	32.0	1	29.3	51.3	40.8	3,137	3,871	3,482	10,490	40	E.	23
May	29.965	29.931	29.950	29.949	30.359	1	29.439	21	.920	55.2	59.3	55.0	56.5	75.0	28	40.2	1	34.8	62.4	50.5	3,489	3,581	3,590	10,660	42	N.	16
June	29.988	29.962	29.967	29.972	30.477	2	29.593	11	.884	67.9	70.5	65.0	67.8	84.0	11	54.3	2	29.7	78.5	61.3	2,601	3,105	3,232	8,938	39	W.	11
July	29.982	29.950	29.964	29.965	30.238	21	29.703	13	.535	72.9	75.9	69.8	72.9	91.0	23	59.5	1	31.5	79.4	66.3	2,858	3,314	3,473	9,645	36	E.	8
Aug	30.029	29.998	30.020	20.014	30.248	15	29.648	2	.600	69.2	73.4	68.5	70.4	86.0	21	58.0	31	28.0	75.4	64.6	3,068	3,779	3,199	10,046	40	N.	2
Sept	30.074	30.081	30.042	30.049	30.396	10	29.524	24	.872	62.5	67.8	63.0	64.4	77.0	5, 14	48.0	27	29.0	69.8	59.0	3,511	3,882	3,803	11,196	49	W.	24
Oct	30.155	30.104	30.140	30.133	30.614	17	29.424	29	1.190	53.7	58.2	54.3	55.4	74.0	2	40.3	25	33.7	60.0	50.1	3,764	3,944	3,596	11,304	56	NE.	23
Nov	30.161	30.107	30.134	30.134	30.615	17	29.714	11	.901	43.6	50.2	45.0	46.3	63.0	22	24.0	16 17	39.0	53.4	40.3	3,556	4,067	3,558	11,181	60	NW.	12
Dec	30.103	30.065	30.094	30.087	30.637	23	29.465	27	1.172	34.9	40.2	36.6	37.2	57.0	8	11.0	23	46.0	44.3	30.9	3,461	3,919	3,479	10,859	59	NW.	28
Sums..	360.872	360.381	360.680	360.644	......	....	......	...	......	599.1	655.7	601.9	618.9	....	....	.....	....	....	690.7	545.2	40,543	45,909	42,487	128,989	....	....	...
																					Averages.						
Means.	30.073	30.032	30.057	30.054	30.784	*2	29.128	†10	......	49.9	54.6	50.2	51.6	91.0	‡23	6.4	§24	....	57.6	45.4	3,378.6	3,825.8	3,540.6	....	....	....	...

* February. † March. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).				Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.								
1883.										*In.*	*In.*						°	°	°	°												
Jan	13	17	10	3	1	15	11	22	1	3.91	.98	20, 21	7.3	7.5	6.7	7.2	24.2	27.6	26.5	26.1	83.6	80.2	86.1	83.3	4	8	19	17	8	25	0	
Feb	12	8	10	4	4	13	12	20	1	5.98	1.89	11	6.8	6.9	5.2	6.3	26.9	30.6	27.9	28.5	79.9	73.4	76.5	76.6	5	14	9	15	1	20	0	
Mar	15	11	6	8	6	12	10	24	1	3.28	1.38	10	4.8	5.5	4.1	4.8	24.2	27.5	26.2	26.0	71.0	62.1	70.5	67.9	7	17	7	9	2	19	0	
Apr	11	14	17	8	10	17	5	7	1	3.93	1.08	23, 24	5.9	6.6	6.5	6.3	39.7	39.5	39.6	39.6	81.5	74.4	82.6	79.5	3	15	12	17	0	0	0	
May	6	12	19	9	10	18	11	6	2	1.97	.70	21, 22	4.5	5.0	4.5	4.7	49.5	50.3	50.6	50.1	82.0	73.5	86.1	80.5	9	15	7	15	0	0	0	
June	6	4	7	7	24	27	12	2	1	4.09	1.82	13, 14	3.9	4.7	3.0	3.9	62.8	63.4	62.1	62.8	84.7	78.9	90.3	84.6	10	17	3	11	0	0	0	
July	11	6	4	5	11	33	18	5	0	2.43	1.41	8, 9	4.6	5.2	3.7	4.5	66.4	66.9	66.6	66.6	80.5	74.2	89.9	81.5	11	17	3	11	0	0	1	
Aug	13	5	28	2	8	15	14	8	0	2.13	1.72	2	4.3	4.3	3.1	3.9	61.7	63.1	62.4	62.4	77.6	71.1	81.5	76.7	14	13	4	6	0	0	0	
Sept	15	9	23	6	10	9	14	3	1	4.84	2.61	11, 12	6.2	5.8	4.9	5.6	57.3	58.0	58.1	57.8	83.8	73.0	84.7	80.5	7	14	9	11	0	0	0	
Oct	21	13	25	7	9	6	7	3	2	6.51	3.29	23, 24	6.3	6.1	4.5	5.6	47.8	49.5	47.9	48.4	81.1	74.5	80.2	78.6	8	10	13	18	0	0	0	
Nov	16	4	9	1	10	20	14	15	1	1.06	.85	26, 27	4.7	5.0	3.6	4.4	36.8	38.7	38.5	38.0	77.3	66.2	78.6	74.0	13	9	8	11	0	6	0	
Dec	22	11	7	2	5	16	13	16	1	2.83	1.01	19	6.2	6.3	4.7	5.7	28.6	30.9	30.5	30.0	77.7	70.9	78.6	75.7	8	10	13	15	1	16	0	
Sums ..	161	114	165	62	108	201	141	131	12	42.96	.....	.....	65.5	68.9	54.5	62.9	525.9	546.0	536.9	536.8	960.7	872.4	985.6	939.4	99	159	107	156	12	86	1	
	Percentages.																								Percentages.							
Means .	14.7	10.4	15.1	5.7	9.9	18.4	12.9	12.0	1.1	.....	.....	.....	5.5	5.7	4.5	5.2	43.8	45.5	44.7	44.7	80.1	72.7	82.1	78.8	27.1	43.6	29.3	42.8	3.3	28.6	.8	

NOTE—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.12 a. m., 3.12, and 11.12 p. m., local time.

Correction for instrumental error of barometer used: From 7.12 a. m., January 1, to 11.12 p. m., December 31, inclusive, +.011 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; February, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

GEO. A. HILL,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

BENNETT, FORT, DAK.

[Latitude, 44° 49′ N.; longitude, 100° 30′ W. Magnetic variation 15° 15′ E. Elevation of barometer above sea-level, 1,510 (B.) feet. Elevation of exposed thermometer above ground, 12 feet. Elevation of rain-gauge above ground, 18 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28.531	28.494	28.548	28.524	28.955	19	27.785	12	1.170	− 1.6	12.5	5.6	5.5	47.0	9	−42.0	20	89.0	19.8	− 7.7	1,514	2,435	1,817	5,766	49	NW.	12 30
Feb	28.626	28.594	28.628	28.616	29.030	1	27.948	15	1.082	8.6	23.8	16.0	16.1	60.0	28	−31.0	4	91.0	30.3	1.9	1,035	1,562	1,395	3,992	36	NW.	15
Mar	28.520	28.489	28.505	28.505	29.095	2	27.821	17	1.274	22.7	38.0	28.7	29.8	72.0	17	− 1.0	18	73.0	43.0	18.2	1,479	2,972	1,908	6,359	60	NW.	9
Apr	28.333	28.292	28.311	28.312	28.956	24	27.632	20	1.324	37.2	54.6	45.1	45.6	78.0	20	22.0	1	56.0	59.0	34.3	1,379	2,390	1,951	5,720	44	NW.	14
May	28.368	28.343	28.356	28.356	28.751	10	27.597	18	1.154	44.4	58.2	51.3	51.3	85.0	31	30.0	2	55.0	62.9	41.4	1,631	2,781	2,463	6,875	32	NE.	13
June	28.359	28.337	28.345	28.347	28.582	2	27.991	10	.591	58.6	75.6	64.2	66.1	97.0	30	37.5	9	59.5	79.0	54.3	1,352	2,516	1,897	5,765	36	NE.	22
July	28.407	28.365	28.380	28.384	28.690	28	28.026	13	.664	62.2	81.5	67.8	70.5	99.5	25	47.0	14 17 27	52.5	84.5	58.9	1,461	2,579	1,955	5,995	48	NW.	13
Aug	28.446	28.405	28.421	28.424	28.671	28	27.938	21	.733	59.1	82.4	67.4	69.6	98.0	31	42.0	23	56.0	85.1	57.6	1,332	2,321	2,083	5,736	51	NW.	16
Sept	28.512	28.461	28.488	28.487	28.860	2	28.052	12	.808	48.1	71.3	56.5	58.6	95.0	11	27.0	25	68.0	74.1	46.6	1,510	2,449	2,216	6,175	35	NW.	21
Oct	28.439	28.401	28.448	28.429	28.939	19	27.837	17	1.102	36.0	51.2	41.3	42.8	83.0	6	20.0	3	63.0	54.0	33.8	1,630	2,608	2,047	6,285	29	NW.	18 29
Nov	28.421	28.382	28.391	28.401	28.981	15	27.839	24	1.142	20.0	42.1	29.1	30.4	63.0	2, 6	− 4.0	26	67.0	47.3	16.0	1,066	2,063	1,206	4,335	40	NW.	11 13
Dec	28.495	28.463	28.514	28.491	29.140	31	27.758	17	1.382	13.1	27.8	17.9	19.6	56.0	2	−19.0	20	75.0	33.1	7.8	1,010	1,809	1,485	4,304	40	NW.	15
Sums..	341.467	341.026	341.335	341.276	......	...	......	...	......	408.4	619.0	490.9	505.9	....	....	......	....	....	672.1	363.1	16,399	28,485	22,428	67,807	....	....	....
																					Average.						
Means.	28.456	28.419	28.445	28.440	29.140	*31	27.597	†18	......	34.0	51.6	40.9	42.2	99.5	‡25	−42.0	§20	....	56.0	30.3	1,366.6	2,373.8	1,868.6	......	....	....	....

* December. † May. B.—Elevation determined from barometer. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 8 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	4	7	1	19	0	1	0	35	26	0.37	0.12	18	5.5	6.2	4.0	5.2	− 6.4	3.0	− 0.3	− 1.2	80.3	66.1	76.6	74.3	7	18	6	6	23	31	0	
Feb	3	5	0	11	2	5	5	25	28	0.40	0.12	1, 2	4.4	5.9	3.9	4.7	4.2	15.0	10.0	9.7	82.6	69.8	77.1	76.5	12	8	8	8	13	28	0	
Mar	4	18	2	20	0	3	1	24	21	0.64	0.19	27, 28	6.2	5.9	5.5	5.9	17.9	22.0	22.2	20.7	81.5	56.1	76.9	71.5	7	13	11	13	7	30	0	
Apr	6	23	3	18	2	3	1	13	21	2.82	1.29	21, 22	6.7	6.6	5.9	6.4	32.3	32.8	35.0	33.4	82.8	47.2	68.7	66.2	4	15	11	7	0	11	0	
May	10	17	3	26	3	2	5	18	9	2.35	1.23	13	6.8	7.9	6.1	6.9	40.7	41.6	43.6	42.0	87.1	57.1	75.9	73.4	3	13	15	13	0	2	0	
June	6	8	1	31	4	8	3	15	14	3.99	1.39	17	4.4	5.9	4.3	4.9	53.2	54.9	55.0	54.4	83.1	50.2	73.0	68.8	8	17	5	9	0	0	3	
July	5	14	6	35	2	2	6	23	0	1.79	0.79	28, 29	5.7	5.8	4.0	5.2	55.9	56.7	58.1	56.9	80.6	45.2	72.6	66.1	8	16	7	11	0	0	8	
Aug	3	11	2	37	5	6	3	24	2	1.88	0.80	31	4.8	3.9	3.3	4.0	55.0	57.2	58.3	56.8	86.4	45.3	73.5	68.4	12	15	4	9	0	0	7	
Sept	6	10	2	34	3	5	1	25	4	0.30	0.17	21, 22	5.0	4.5	1.7	3.7	41.5	44.9	43.2	43.2	78.5	41.4	63.1	61.0	12	15	3	4	0	2	3	
Oct	4	12	2	34	1	4	1	28	7	1.19	0.87	16, 17	6.5	7.5	5.6	6.5	30.9	32.8	32.6	32.1	82.1	53.2	72.3	69.2	4	16	11	8	0	12	0	
Nov	3	7	1	18	2	5	0	30	24	(*)	(*)	9	3.0	5.0	2.7	3.6	14.1	20.4	18.2	17.6	77.5	44.2	64.9	62.2	14	14	2	0	3	30	0	
Dec	2	15	2	12	0	2	0	26	34	1.18	0.85	6	4.8	6.4	4.8	5.3	9.1	15.2	12.9	12.4	84.0	61.8	81.6	75.8	8	16	7	11	12	31	0	
Sums ..	56	147	25	295	24	46	26	286	190	16.91	....	......	63.8	71.5	51.8	62.3	348.4	396.5	388.8	378.0	986.5	637.6	876.2	833.4	99	176	90	99	58	177	21	
	Percentages.																								Percentages.							
Means .	5.1	13.4	2.3	26.9	2.2	4.2	2.4	26.1	17.3	.....	.....	......	5.3	6.0	4.3	5.2	29.0	33.0	32.4	31.5	82.2	58.1	73.0	69.4	27.1	48.2	24.7	27.1	15.9	48.5	5.8	

* Inappréciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 5.26 a. m., 1.26 p. m., and 9.26 p. m., local time.

Corrections for instrumental errors of barometer used: From 5.26 a. m., January 1, to 9.26 p. m., January 31, inclusive, +.005 inch; from 5.26 a. m., February 1, to 9.26 p. m., December 31, inclusive, +.022 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.740; February, 1.730; March, 1.700; April, 1.640; May, 1.560; June, 1.540; July, 1.540; August, 1.540; September, 1.590; October, 1.620; November, 1.690; December, 1.760.

A. PRITCHARD,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

BENTON, FORT, MONT.

[Latitude, 47° 50′ N.; longitude, 110° 40′ W. Magnetic variation, 21° E. Elevation of barometer above sea-level, 2,694 (B.) feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 35 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	8 p. m.	11 p. m.							7 a. m.	8 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 8 p. m.	8 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	27. 207	27. 227	27. 211	27. 215	27. 792	18	26. 662	11	1. 130	8. 4	16. 7	10. 0	11. 7	49	29	−36	19	85	22. 1	0. 1	1, 594	2, 071	1, 712	5, 877	42	N., NW.	29
Feb	27. 343	27. 317	27. 316	27. 325	27. 729	1	26. 853	22	. 876	9. 7	23. 8	17. 4	17. 0	58	27 28	−41	8	99	27. 8	4. 2	1, 260	1, 580	1, 800	4, 640	36	SW.	22
Mar	27. 268	27. 217	27. 275	27. 258	27. 731	2	26. 646	17	1. 085	24. 7	48. 8	31. 7	33. 4	68	16 17	6	27	62	47. 6	21. 3	1, 076	1, 494	2, 197	4, 767	52	NE.	17
Apr	27. 112	27. 074	27. 089	27. 092	27. 706	24	26. 547	20	1. 159	34. 4	52. 1	43. 0	43. 2	71	28	15	1	56	54. 7	31. 4	1, 115	1, 978	2, 200	5, 288	36	SW.	15
May	27. 190	27. 159	27. 177	27. 175	27. 548	29	26. 782	17	. 766	41. 8	57. 7	49. 6	49. 7	76	20	26	5	50	60. 8	39. 8	1, 104	1, 647	2, 178	4, 929	48	W.	31
June	27. 167	27. 156	27. 189	27. 154	27. 453	8	26. 925	10	. 528	56. 8	70. 5	63. 3	63. 5	97	29	36	1	61	74. 9	50. 8	911	1, 676	1, 912	4, 499	36	W.	4
July	27. 259	27. 191	27. 224	27. 225	27. 503	26	26. 083	14	1. 470	63. 9	77. 4	67. 2	69. 5	94	18	44	14 17	50	80. 7	51. 5	619	1, 363	1, 979	3, 961	40	SW.	2
Aug. * ...	27. 285	27. 228	27. 241	27. 251	27. 446	1	26. 931	20	. 515	62. 0	79. 2	69. 4	70. 2	92	15 16 28	37	22 23	55	81. 6	58. 6	795	1, 003	1, 562	3, 360	40	S.	16
Sept	27. 360	27. 289	27. 295	27. 315	27. 908	20	26. 988	18	. 920	48. 5	67. 9	58. 1	58. 2	84	5, 10	30	24	54	70. 6	42. 6	334	654	1, 066	2, 054	40	NW.	5
Oct	27. 217	27. 185	27. 195	27. 199	27. 682	10	26. 611	27	1. 071	35. 0	47. 9	40. 4	41. 1	67	5	21	24	46	51. 2	32. 0	784	1, 215	1, 429	3, 428	48	SW.	29
Nov	27. 178	27. 141	27. 177	27. 165	27. 836	18	26. 725	22	1. 111	25, 1	37. 4	29. 5	30. 7	61	1, 12	−22	26	83	40. 8	18. 8	1, 215	1, 955	1, 935	5, 105	48	SW.	6
Dec	27. 249	27. 232	27. 240	27. 240	27. 833	14	26. 551	25	1. 252	21. 8	34. 6	27. 7	28. 0	60	2, 12	−10	30	70	39. 0	17. 3	1, 621	1, 901	1, 440	4, 962	36	NW. SW.	17 8, 25
Sums..	326. 835	326. 416	326. 579	326. 609	......	....	......	....	......	432. 1	609. 0	507. 3	516. 2	....	...	.....	....	....	651. 3	363. 4	12, 428	18, 532	21, 410	52, 870	....	....	....
																					Averages.						
Means.	27. 236	27. 202	27. 215	27. 218	27. 908	†20	26. 033	‡14	......	36. 0	50. 8	42. 3	43. 0	97	§29	−41	‖8	....	54. 3	30. 3	1, 035. 7	1, 544. 3	1, 784. 2	......	...	....	....

B.—Elevation determined by barometer.

* One 7 a. m., three 8 p. m., two 11 p. m. observations missed. † September. ‡ January. § June. ‖ February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	17	4	3	0	21	4	1	35	0.75	0.18	29	6.5	7.0	5.8	6.4	—.2	3.7	Zero	1.2	69.8	57.4	63.8	63.7	5	14	12	9	20	31	0	
Feb	0	9	1	0	0	34	2	3	35	0.45	0.21	7, 8	3.2	5.2	4.2	4.2	Zero	9.4	7.2	5.5	64.2	55.8	65.1	61.7	10	14	4	8	16	28	0	
Mar	4	26	8	0	0	9	14	2	30	1.34	0.35	24	4.0	5.8	6.0	5.3	15.4	21.7	28.2	21.8	67.3	46.2	66.3	59.9	9	12	10	12	6	28	0	River op'd Mar. 5.
Apr	2	10	7	1	3	26	10	3	28	1.02	0.55	21	3.9	5.7	4.8	4.8	23.1	27.8	29.7	26.9	62.9	41.5	60.5	55.0	6	19	5	9	0	12	0	
May	1	7	3	10	9	18	5	7	33	3.31	1.40	28	4.0	6.8	5.6	5.5	32.1	41.2	39.4	37.6	69.0	57.6	69.4	65.3	7	16	8	13	0	6	0	
June	1	9	0	3	4	17	15	0	41	1.93	0.50	17	2.8	4.2	4.5	3.8	43.6	46.6	49.3	46.5	62.9	46.9	62.5	57.4	13	12	5	9	0	0	6	
July	2	4	3	0	6	21	11	5	41	0.16	0.11	10	1.6	3.7	2.8	2.7	45.5	42.7	45.9	44.7	52.5	32.2	48.4	44.4	16	14	1	3	0	0	4	
Aug.*	11	6	1	0	11	0	9	2	47	1.01	0.86	21	1.5	1.5	1.8	1.6	44.6	43.3	45.7	44.5	56.0	31.6	45.7	44.4	21	6	1	2	0	0	3	
Sept	5	7	4	0	2	5	5	1	61	0.93	0.83	1	3.9	3.3	2.2	3.1	38.9	38.7	40.4	39.3	71.1	37.5	54.6	54.4	16	12	2	2	0	5	0	1st frost Sept. 20.
Oct	5	3	1	0	10	10	5	3	56	1.64	0.63	9	7.4	6.2	4.5	6.0	25.8	27.9	29.4	27.7	71.3	50.6	65.8	62.6	4	17	10	7	0	15	0	
Nov	7	6	0	0	10	23	2	6	36	0.36	0.17	24	7.4	6.2	5.8	6.5	9.0	15.1	10.8	11.6	54.8	44.8	48.7	49.4	4	13	13	6	5	26	0	
Dec	1	10	0	0	0	27	9	3	43	0.11	0.07	18	6.4	6.7	4.7	5.9	4.2	11.2	12.0	9.1	48.5	41.7	53.8	48.0	6	14	11	3	10	26	0	River cl'd Dec. 22.
Sums	47	114	32	17	55	211	91	36	486	13.01	......	......	52.6	62.3	52.7	55.8	282.0	329.3	338.0	316.4	750.3	543.8	704.6	666.2	117	163	82	83	57	177	13	
	Percentages.																								Percentages.							
Means	4.3	10.5	2.9	1.6	5.1	19.4	8.4	3.3	44.6	......	......	......	4.4	5.2	4.4	4.7	23.5	27.4	28.2	26.4	62.5	45.3	58.7	55.5	32.3	45.0	22.7	22.7	15.7	48.8	3.6	

*One 7 a. m., three 3 p. m., two 11 p. m. observations missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.45 a. m., 12.45 p. m., and 8.45 p. m., local time.

Correction for instrumental error of barometer used: From 4.45 p. m., January 1, to 8.45 p. m., December 31, inclusive, .026 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.980; February, 3.000; March, 2.980; April, 2.860; May, 2.790; June, 2.770; July, 2.710; August, 2.790; September, 2.840; October, 2.910; November, 2.960; December, 3.000.

THOMAS MORGAN,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

BISMARCK, DAK.

[Latitude, 46° 47′ N.; longitude, 100° 38′ W. Magnetic variation, 16° E. Elevation of barometer above sea-level, 1,694 feet. Elevation of exposed thermometer above ground, 18 feet. Elevation of rain-gauge above ground, 31 feet.

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28.241	28.217	28.259	28.239	28.661	18	27.432	29	1.229	−6.2	2.1	−3.7	−2.6	40.0	9	−37.0	20	77.0	9.1	−12.8	2,119	2,570	2,400	7,089	47	NW.	9
Feb	28.328	28.311	28.341	28.327	28.765	1	27.812	10	.953	2.6	14.1	6.7	7.8	40.0	19 27 28	−29.0	3	69.0	19.0	−2.4	1,622	1,999	2,102	5,723	30	W.	4
Mar	28.269	28.259	28.260	28.263	28.785	2	27.568	17	1.217	16.1	27.1	20.8	21.4	55.0	17	−10.0	18	65.0	31.0	11.7	2,143	2,571	2,479	7,193	50	NW.	9
Apr	28.110	28.083	28.100	28.098	28.732	24	27.667	20	1.065	33.8	49.9	40.2	41.3	73.0	27	14.0	1	59.0	52.1	31.6	1,891	2,636	2,787	7,314	56	E.	21
May	28.158	28.125	28.143	28.142	28.531	10	27.518	18	1.031	42.5	58.4	49.1	50.0	82.0	31	25.0	10	57.0	61.0	39.9	2,063	2,639	2,774	7,476	42	NE.	9
June	28.108	28.097	28.091	28.099	28.370	2	27.782	10	.588	57.3	73.2	64.0	64.8	99.0	30	33.0	2	66.0	70.3	53.5	1,516	2,424	2,154	6,094	35	N.	5
July	28.167	28.143	28.157	28.156	28.493	28	27.645	13	.848	58.8	76.7	65.9	67.1	92.0	9	43.0	17	49.0	79.5	55.8	1,425	2,359	2,351	6,135	56	NW.	13
Aug	28.226	28.199	28.204	28.210	28.455	28	27.725	21	.730	56.2	75.9	65.6	65.9	92.0	30	42.0	23	50.0	78.6	54.8	1,635	2,142	2,554	6,331	37	NW.	19
Sept	28.277	28.249	28.262	28.263	28.645	20	27.713	12	.932	45.9	67.7	54.7	56.1	92.0	12	16.5	30	75.5	69.4	43.7	1,451	2,172	2,502	6,125	34	N.	21
Oct*	28.182	28.172	28.201	28.185	28.694	19	27.564	17	1.130	36.1	46.2	39.0	40.4	73.0	6 7	20.0	2	53.0	48.3	33.4	1,862	2,519	2,315	6,696	34	NW.	29
Nov†	28.166	28.120	28.138	28.141	28.698	11	27.626	24	1.027	19.6	34.2	24.6	26.1	60.0	12	−14.0	26	74.0	38.7	15.0	1,598	2,377	2,196	6,171	40	NW.	25
Dec	28.220	28.205	28.256	28.227	28.848	31	27.380	17	1.468	11.1	19.7	12.1	14.3	54.0	12	−24.0	19 20	78.0	25.0	4.5	1,617	2,163	1,855	5,635	32	NW., N.	13 28
Sums..	338.452	338.180	338.412	338.350	......	....	......	....	......	373.8	545.2	439.1	452.6	....	.....	......	....	....	588.0	328.7	20,942	28,571	28,469	77,982	....	....	....
																					Averages.						
Means.	28.204	28.182	28.201	28.196	28.848	‡31	27.380	‡17	......	31.2	45.4	36.6	37.7	99.0	§30	37.0	‖20	....	49.0	27.4	1,745.2	2,380.9	2,372.4	......	....	....	....

* Three 7 a. m. observations missed. † Two 7 a. m. observations missed. ‡ December. § June. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	16	2	14	9	6	1	3	32	10	0.25	0.16	29, 30	4.6	5.2	3.2	4.3	−9.4	−4.3	−8.0	−7.2	87.5	75.1	82.9	81.8	9	17	5	6	29	31	0	
Feb	13	1	4	7	1	7	19	28	4	0.66	0.30	23	3.8	5.2	2.8	3.9	−1.1	7.5	2.5	3.0	85.3	76.0	83.2	81.5	14	7	7	7	23	28	0	
Mar	15	13	15	3	5	7	7	17	11	0.38	0.15	20	7.3	5.9	5.3	6.2	11.0	17.3	14.6	14.3	79.6	66.9	76.1	74.2	5	16	10	8	14	31	0	
Apr	13	8	27	5	7	4	6	15	5	1.57	1.00	21	6.1	5.1	3.9	5.0	29.2	28.0	31.4	29.5	83.3	47.4	69.7	66.8	9	13	8	9	1	13	0	
May	18	16	17	10	7	1	5	15	4	1.15	0.54	17, 18	5.0	6.1	4.7	5.3	35.5	32.2	36.6	34.8	77.2	40.2	62.5	60.0	6	20	5	10	0	5	0	River opened Apr. 10.
June	8	7	13	13	13	7	9	16	4	3.84	1.35	17, 18	4.0	4.2	3.3	3.8	51.4	53.2	54.4	53.0	81.0	51.7	73.0	68.6	13	12	5	10	0	0	4	
July	14	8	15	6	9	7	6	21	7	1.32	0.60	23	4.3	4.8	3.4	4.2	51.8	53.0	52.7	52.5	77.8	46.7	63.7	62.7	11	16	4	8	0	0	2	Light frost on June 2; no damage.
Aug	14	16	19	16	5	1	13	7	2	0.98	0.50	18	4.6	3.9	2.0	3.5	50.9	53.0	54.5	52.8	83.3	47.0	68.2	66.2	16	11	4	5	0	0	1	
Sept	21	8	8	14	12	4	5	12	6	0.04	0.03	6	3.4	3.1	2.2	2.9	39.5	43.5	40.1	41.0	79.2	42.9	59.2	60.4	17	11	2	2	0	2	2	
Oct*	11	9	14	21	11	3	3	15	3	3.88	1.50	20, 21	7.0	6.6	5.5	6.4	32.4	34.2	33.4	33.3	88.1	68.5	82.3	79.6	5	9	14	13	0	10	0	
Nov†	12	7	9	9	7	4	16	23	1	0.26	0.12	19, 20	3.7	6.1	2.8	4.2	16.2	25.0	20.1	20.4	86.8	72.8	83.5	81.0	9	15	4	5	8	28	0	
Dec	16	3	12	5	4	5	6	37	5	1.33	0.59	6	4.0	5.2	4.1	4.4	2.7	7.8	3.6	4.7	68.0	61.6	68.2	65.9	12	12	7	13	17	30	0	
Sums ..	171	98	167	118	87	51	98	238	62	15.66	....	......	57.8	61.4	43.2	54.1	310.1	350.4	335.9	332.1	977.1	696.8	872.5	848.6	126	159	75	96	92	178	9	
	Percentages.																								Percentages.							
Means .	15.7	9.0	15.3	10.8	8.0	4.7	9.0	21.8	5.7	......	....	......	4.8	5.1	3.6	4.5	25.8	29.2	28.0	27.7	81.4	58.1	72.7	70.7	35.0	44.2	20.8	26.7	25.6	48.8	2.5	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.26 a. m., 1.26 p. m., and 9.26 p. m., local time.

Correction for instrumental error of barometer used: From 5.26 a. m., January 1, to 9.26 p. m., December 31, inclusive, +.008 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.00; February, 1.98; March, 1.92; April, 1.88; May, 1.79; June, 1.76; July, 1.73; August, 1.76; September, 1.80; October, 1.88; November, 1.93; December, 2.02.

B. O. LENOIR,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

BLOCK ISLAND, R. I.

[Latitude, 41° 10′ N.; longitude, 71° 36′ W. Magnetic variation, unknown. Elevation of barometer above sea-level, 27 feet. Elevation of exposed thermometer above ground, 8 feet. Elevation of rain-gauge above ground, 28 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.159	30.120	30.137	30.139	30.567	24	29.399	10	1.168	28.1	32.0	29.7	29.9	56.0	14	6.0	23	50.0	37.7	23.2	3,831	3,928	3,889	11,815	52	NE.	10
Feb	30.210	30.184	30.231	30.208	30.736	24	29.555	7	1.181	30.5	34.5	31.4	32.1	49.0	25	15.0	27	34.0	39.1	25.6	3,720	3,843	3,343	10,965	46	NW.	12
Mar	29.937	29.854	29.909	29.900	30.465	5	28.889	10	1.576	30.3	35.6	31.9	32.6	54.0	19	10.0	5	44.0	39.5	25.3	4,420	4,420	4,662	13,502	55	NE.	10
Apr	20.987	29.958	29.987	29.977	30.464	14	29.593	6	.871	41.0	45.4	41.5	42.6	62.0	18	27.0	1	35.0	49.4	37.4	3,059	3,416	3,150	9,625	36	NE.	23
May	29.961	29.931	29.958	29.950	30.420	1	29.521	15	.899	51.6	55.6	50.5	52.6	69.0	30	42.0	1 5 14 17	27.0	58.8	46.8	3,017	3,412	3,296	9,725	34	SW.	29
June	29.987	29.967	29.969	29.974	30.519	2	29.538	11	.981	63.4	67.8	62.1	64.4	78.0	24	51.5	2	26.5	69.2	58.7	2,562	3,206	3,082	8,850	34	S.	28
July	29.953	29.931	29.943	29.942	30.224	21	29.722	7	.502	68.4	73.6	67.6	69.9	82.0	6	55.0	1	27.0	75.5	63.4	2,754	3,366	3,380	9,500	46	N.	2
Aug	30.014	29.982	29.998	29.998	30.275	15	29.692	2	.583	65.1	71.1	65.5	67.2	81.0	21 22	56.0	27 30	25.0	72.6	61.3	2,884	3,289	3,279	9,452	47	NE.	29
Sept	30.070	30.038	30.047	30.052	30.405	10	29.426	24	.979	59.7	65.0	59.9	61.5	75.5	15	41.5	10	34.0	66.5	55.0	3,238	3,310	3,181	9,729	39	W.	25
Oct	30.156	30.104	30.136	30.132	30.611	17	29.357	2	1.254	50.3	55.1	51.7	52.4	71.0	11 13	39.0	16 17 22	32.0	57.6	46.2	4,231	3,989	3,634	11,854	55	NE.	24
Nov	30.116	30.078	30.094	30.096	30.570	17	29.590	12	.980	44.1	47.9	46.0	46.0	63.5	21	23.8	16 17	39.7	53.6	39.6	4,114	4,100	3,977	12,191	54	NW.	12
Dec	30.067	30.031	30.050	30.049	30.652	23	29.229	27	1.423	33.7	36.1	35.1	35.0	58.0	8	−1.0	23	59.0	43.4	28.1	4,496	4,725	4,146	13,367	55	NW.	28
Sums	360.617	360.178	360.449	360.417	......	....	......	....	......	566.2	619.7	572.9	586.2	....	...	......	......	....	662.9	510.6	42,326	45,004	42,969	130,575	....	....	...
																					Averages.						
Means	30.051	30.015	30.037	30.034	30.736	*24	28.889	†10	......	47.2	51.6	47.7	48.8	82.0	‡6	−1.0	§23	....	55.2	42.6	3,527.2	3,750.3	3,580.8	......	....	....	...

* February. † March. ‡ July. § December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	28	18	4	6	1	6	11	12	7	3.95	0.90	20, 21	6.5	6.1	5.8	6.0	21.9	24.6	22.8	23.1	77.5	74.3	76.9	76.2	6	15	10	16	9	27	0	
Feb	19	9	1	5	0	8	21	18	3	4.09	1.16	6, 7	4.8	5.6	4.3	4.9	23.0	25.7	23.9	24.2	73.4	70.3	73.4	72.4	7	14	7	13	2	25	0	February 27, earthquake shocks.
Mar	33	15	0	3	2	22	8	9	1	2.47	1.34	10	3.7	4.0	3.3	3.7	20.8	24.7	24.0	23.2	67.5	65.3	72.2	68.3	15	12	4	6	4	26	0	
Apr	19	23	3	7	3	28	5	2	0	3.49	0.95	22, 23	4.6	5.1	3.7	4.5	35.5	38.6	36.7	36.9	81.1	78.3	83.9	81.1	10	15	5	12	0	8	0	
May	7	17	4	13	11	29	6	6	0	2.89	1.08	22	4.2	4.8	3.2	4.1	46.2	48.2	45.9	46.8	82.8	77.8	84.7	81.8	7	22	2	13	0	0	0	
June	4	3	4	15	8	46	6	4	0	1.54	0.56	27, 28	4.1	3.1	4.1	3.8	60.8	62.5	59.7	61.0	91.7	83.9	92.1	89.2	12	13	5	13	0	0	0	
July	5	10	1	2	7	41	13	13	1	3.53	1.42	16	3.9	4.2	3.1	3.7	63.5	64.9	63.4	63.9	84.9	75.3	86.4	82.2	15	12	4	7	0	0	0	
Aug	11	22	4	5	1	30	8	10	2	1.74	0.73	2, 3	4.0	3.5	3.1	3.5	59.6	61.1	60.2	60.3	82.9	72.3	83.6	79.6	15	13	3	7	0	0	0	
Sept	10	28	5	8	8	27	7	6	1	2.60	1.16	12, 13	4.8	4.8	5.3	5.0	53.6	55.4	54.1	54.4	81.4	72.8	82.0	78.7	8	12	10	12	0	0	0	
Oct	16	34	8	6	7	13	5	3	1	7.38	2.64	23, 24	4.4	5.0	5.0	4.8	44.8	47.7	44.5	45.7	81.9	77.7	77.7	79.1	10	14	7	12	0	0	0	
Nov	19	8	3	2	6	32	8	12	0	3.16	1.98	26, 27	4.8	4.8	3.4	4.3	38.3	40.3	40.1	39.6	80.5	75.7	80.1	78.7	9	15	6	14	0	5	0	
Dec	15	22	1	6	4	16	4	22	3	2.85	0.60	16, 17	5.2	6.5	5.5	5.7	29.0	29.8	29.7	29.5	82.6	78.2	80.8	80.5	10	10	11	13	2	19	0	
Sums ..	186	204	38	78	53	298	102	117	19	39.69	......	......	55.0	57.5	49.3	54.0	497.0	523.5	505.0	508.7	968.2	901.9	973.8	947.8	124	167	74	138	17	105	0	
	Percentages.																								Percentages.							
Means .	17.0	18.6	3.5	7.1	4.8	27.2	9.3	10.7	1.7	......	......	......	4.6	4.8	4.1	4.5	41.4	43.6	42.1	42.4	80.7	75.2	81.2	79.0	34.0	45.7	20.3	37.8	4.7	28.8	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.22 a. m., 3.22 p. m., and 11.22 p. m., local time.
Correction for instrumental error of barometer used: From 7.22 a. m., January 1, to 11.22 p. m., December 31, inclusive, +.015 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.030; February, 0.030; March, 0.030; April, 0.030; May, 0.030; June, 0.030; July, 0.030; August, 0.030; September, 0.030; October, 0.030; November, 0.030; December, 0.030.

J. T. EIKER,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

BOISÉ CITY, IDAHO.

[Latitude, 43° 37′ N.; longitude, 116° 8′ W. Magnetic variation, 19° 15′ E. Elevation of barometer above sea-level, 2,750 (B.) feet. Elevation of exposed thermometer above ground, 19 feet. Elevation of rain-gauge above ground, 32 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In.		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles.	Miles.			
Jan	27.361	27.330	27.312	27.334	27.771	7	26.861	15	.910	12.6	26.8	23.7	21.0	49.3	24	—27.0	18	76.3	34.0	10.1	703	648	919	2,270	24	SE., NW.	7, 17
Feb	27.373	27.359	27.363	27.365	27.836	17	26.682	13	1.154	13.2	27.6	23.1	21.3	54.0	21	—12.0	4	66.0	35.2	11.0	586	625	825	2,036	28	NE.	13
Mar.	27.232	27.227	27.184	27.214	27.629	2	26.755	29	.874	34.1	56.0	48.5	46.2	72.0	28	27.5	30	44.5	60.2	33.0	777	778	1,043	2,598	28	SE.	18
Apr	27.135	27.124	27.105	27.121	27.474	14	26.644	19	.830	32.9	52.0	47.6	44.2	67.5	7	17.5	1	50.0	57.0	31.7	1,119	1,404	1,450	3,973	28	NE., NW.	4, 9
May	27.152	27.111	27.093	27.119	27.568	25	26.734	12	.834	45.1	65.1	57.9	56.0	84.3	30	31.0	3	53.3	70.6	43.6	657	1,131	1,911	3,899	28	SE.	16
June	27.179	27.149	27.125	27.151	27.487	5	26.795	10	.692	54.0	79.3	72.4	68.6	98.0	27	44.0	15	54.0	86.1	52.1	1,005	1,168	1,644	3,817	28	SE.	20, 30
July	[1]27.226	[2]27.189	[3]27.147	27.187	27.345	23	26.999	12	.346	[1]56.4	[2]84.9	[3]78.2	73.2	[4]90.5	29	[4]40.0	19	59.5	[4]92.9	[4]52.6	920	926	1,267	3,122	32	([5])	8
Aug.	27.193	27.164	27.125	27.161	27.372	19	26.941	11	.431	58.9	83.0	77.8	73.2	105.0	27	49.0	31	56.0	89.7	57.5	678	674	827	2,179	26	SE.	2
Sept.....	27.210	27.187	27.153	27.183	27.557	21	27.008	14	.549	47.4	73.6	65.0	62.0	94.3	4	35.5	29	58.8	81.3	46.0	622	571	920	2,113	29	NW.	12
Oct......	27.210	27.196	27.175	27.194	27.487	30	26.850	3	.637	36.7	51.0	45.9	44.5	73.0	1	26.0	23	47.0	56.3	35.4	470	705	938	2,113	24	NW.	17
Nov.....	27.290	27.267	27.233	27.263	27.694	12	26.639	24	1.055	30.3	46.0	41.5	39.3	58.0	11 24 27	19.3	21	38.7	52.3	28.8	673	569	786	2,028	25	NW.	18
Dec	27.347	27.336	27.323	27.335	27.878	31	26.904	21	.974	.....	[6]37.4	.....	.....	.....	.....	.....	.....	.....	.....	.....	806	856	1,091	2,753	26	SW.	23
Sums..	326.908	326.639	326.338	326.627	......	....	......	...	......	.....	682.7	.....	.....	.....	.....	.....	.....	.....	.....	.....	9,225	10,055	13,621	32,901	...	....	....
																					Averages.						
Means.	27.242	27.220	27.195	27.219	27.878	[7]31	26.639	[8]24	......	.....	56.9	.....	.....	.....	.....	.....	.....	.....	.....	.....	768.8	837.9	1,135.1	......	...	....	....

B.—Elevation determined by barometer.

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[1] Fourteen 7 a. m. observations missing.
[2] Seven 3 p. m. observations missing.
[3] Nine 11 p. m. observations missing.
[4] Seven observations missing.
[5] No observations.
[6] Six 3 p. m. observations missing.
[7] December.
[8] November.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time; Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	10	3	0	20	2	2	14	37	5	3.77	0.90	16	5.2	6.3	5.6	5.7	11.5	21.3	19.1	17.3	90.5	79.9	82.4	84.3	10	8	13	10	12	28	0	
Feb	11	2	4	8	2	1	22	26	8	1.20	0.85	14	3.1	3.5	2.7	3.1	10.4	19.4	17.0	15.6	89.1	72.2	78.0	79.8	16	8	4	3	12	28	0	
Mar	7	3	1	10	2	12	30	27	1	0.28	0.28	26	1.9	3.8	2.6	2.8	27.5	40.8	35.3	34.5	77.1	57.7	61.4	65.4	19	9	3	2	0	12	0	
Apr	10	5	4	12	2	2	23	32	0	0.61	0.15	20	5.2	6.1	5.3	5.5	29.2	41.8	39.0	36.7	87.0	68.8	73.1	76.3	10	9	11	10	0	13	0	Last frost April 29.
May	12	3	4	8	0	2	24	38	2	2.12	0.85	7	3.6	5.2	3.9	4.2	38.9	41.7	42.5	41.0	79.2	44.6	57.8	60.5	11	16	4	6	0	1	0	
June	7	2	2	14	0	4	17	41	3	0.20	0.17	2	2.1	3.5	2.8	2.8	[1]42.9	[2]47.7	[3]46.3	45.6	[1]71.8	[2]38.1	[3]48.6	52.8	16	12	2	8	0	0	8	
July	[4]2	[4]2	[4]0	[4]5	[4]2	[4]5	[4]10	[4]32	[4]2	([5])	([5])	([5])	[6]0.0	[7]0.7	[8]2.2	0.2	[9]34.6	[10]37.2	[11]36.6	36.1	[9]44.3	[10]19.3	[11]24.6	29.4	[12]8	[12]0	[12]0	[5]0	[12]0	[12]0	[13]17	
Aug	8	3	3	8	5	12	18	34	2	(*)	(*)	2, 3	0.3	2.5	2.0	1.6	[14]41.0	[14]52.2	[14]49.9	47.7	[14]55.6	[14]32.9	[14]36.6	41.7	22	9	0	0	0	0	14	
Sept	9	1	2	10	3	7	28	30	0	0.20	0.11	5	2.0	3.1	2.2	2.4	......	......	......	....	......	......	......	....	19	10	1	2	0	0	4	First frost Sept. 26.
Oct	6	6	2	7	1	10	15	41	5	4.06	0.87	27	6.0	5.6	5.6	5.7	33.7	39.5	38.4	37.2	89.2	66.9	75.7	77.3	8	11	12	13	0	6	0	
Nov	8	1	3	9	0	9	21	43	1	0.46	0.19	8	3.9	5.0	4.7	4.5	27.0	34.3	33.8	31.7	87.5	65.4	74.3	75.7	14	6	10	4	0	23	0	
Dec	8	2	6	10	1	7	26	29	4	2.27	1.00	25	4.7	5.6	4.6	4.9	......	......	......	....	......	......	......	....	14	5	12	8	...	...	....	
Sums	93	33	31	121	20	73	248	400	33	.....	.....	.....	38.0	50.9	44.2	43.4	......	......	......	....	......	......	......	....	167	103	72	61	...	...	....	
	Percentages.																								Percentages.							
Means.	8.8	3.1	2.9	11.5	1.9	6.9	23.6	38.0	3.1	....	.....	.....	3.2	4.2	3.7	3.6	......	......	......	....	......	......	......	....	48.8	30.1	21.1	17.4	...	...	....	

[1] Thirteen 7 a. m. observations missing.
[2] Ten 3 p. m. observations missing.
[3] Twelve 11 p. m. observations missing.
[4] Fifty observations only.
[5] Incomplete.
[6] Twenty-three 7 a. m. observations missing.
[7] Fourteen 3 p. m. observations missing.
[8] Sixteen 11 p. m. observations missing.
[9] Twenty-four 7 a. m. observations missing.
[10] Sixteen 3 p. m. observations missing.
[11] Eighteen 11 p. m. observations missing.
[12] Eight days only.
[13] Seven observations missing.
[14] Seventeen observations missing.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.24 a. m., 12.24 p. m., and 8.24 p. m., local time.

Correction for instrumental error of barometer used: From 4.24 a. m., January 1, to 8.24 p. m., December 31, inclusive, +.014 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.930; February, 2.960; March, 2.926; April, 2.840; May, 2.840; June, 2.780; July, 2.720; August, 2.750; September, 2.770; October, 2.860; November, 2.940; December, 2.960.

* Inappreciable.

JAMES KENEALY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

BOSTON, MASS.

[Latitude, 42° 21′ N.; longitude, 71° 4′ W. Magnetic variation, 11° W. Elevation of barometer above sea-level, 142 feet. Elevation of exposed thermometer above ground, 156 feet. Elevation of rain-gauge above ground, 162 feet.]

Month.	Barometer (corrected for tempearture and instrumental error only.)									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.028	29.979	30.009	30.005	30.388	16	29.369	21	1.019	22.8	28.3	24.3	25.1	49.5	21	—0.5	23	50.0	33.8	15.3	2,197	2,658	2,538	*7,393	28	N.	10
Feb	30.054	30.015	30.076	30.048	30.626	24	29.319	7	1.307	26.3	33.8	27.4	29.2	59.5	17	11.0	24, 28	48.5	38.5	19.3	1,962	2,540	2,252	6,754	34	E.	15
Mar	29.765	29.704	29,758	29.742	30.350	1	28.942	10	1.408	28.8	35.3	29.8	31.3	58.5	18	8.0	8	50.5	40.4	21.1	2,562	3,609	3,088	9,259	36	NE.	10
Apr	29.859	29.807	29.855	29.840	30.335	14	29.428	6	.907	41.5	49.1	42.4	44.3	74.5	10	22.0	1	52.5	54.7	35.8	1,730	2,641	2,044	†6,415	27	N.	6
May	29.832	29.782	29.827	29.814	30.297	1	29.416	21	.881	53.9	59.9	52.7	55.5	88.0	26	37.0	1	51.0	65.6	47.3	1,753	2,549	2,279	6,581	28	NE.	22
June	29.842	29.804	29.832	29.826	30.389	2	29.319	11	1.070	67.3	74.4	65.3	69.0	90.8	6	51.0	2	39.8	79.9	60.3	1,591	2,269	1,971	5,831	28	NW.	14
July	29.814	29.768	29.794	29.792	30.069	21	29.523	7	.546	68.4	77.8	67.6	71.3	96.0	4, 6, 7	51.0	2	45.0	82.2	61.2	1,802	2,344	2,071	6,217	27	W.	2
Aug	29.883	29.830	29.872	29.862	30.189	15	29.531	3	.658	63.8	74.4	64.7	67.6	91.8	23	48.0	29	43.8	78.0	58.6	1,900	2,561	2,150	6,611	24	W.	5
Sept	29.936	29.901	29.919	29.919	30.270	10	29.226	25	1.044	55.7	64.8	57.5	59.3	79.0	17	41.0	10	38.0	68.4	51.1	1,718	2,410	1,976	6,104	32	SW.	25
Oct	30.037	29.980	30.023	30.013	30.516	17	29.112	30	1.404	44.2	52.0	46.1	47.4	80.4	11	29.4	23	51.0	56.2	39.2	2,044	2,595	2,138	6,777	35	W.	30
Nov	29.953	29.917	29.941	29.937	30.429	25	29.345	12	1.084	39.1	47.4	40.9	42.5	68.8	22	14.0	13	54.8	51.8	33.9	2,399	2,793	2,490	7,682	40	NW.	12
Dec	29.915	29.874	29.902	29.897	30.529	23	29.040	27	1.489	25.8	32.2	28.1	28.7	58.0	8	—12.0	23	70.0	37.3	20.9	2,363	2,739	2,353	7,455	36	W.	28
Sums..	358.918	358.361	358.808	358.695	......	...	......	...	......	537.6	629.4	546.8	571.2	....	......	......	.....	....	686.3	464.0	24,021	31,708	27,350	83,079	...	....	....
																					Averages.						
Means.	29.910	29.863	29.901	29.891	30.626	‡24	28.942	§10	......	44.8	52.4	45.6	47.6	96.0	‖4, 6, 7	—12.0	¶23	....	57.2	38.7	2,001.8	2,642.3	2,279.2	....	...	....	....

* For 30¾ days. † For 29⅜ days. ‡ February. § March. ‖ July. ¶ December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	10	3	4	6	3	9	29	28	1	3.59	1.01	20, 21	6.4	6.8	5.7	6.3	15.1	19.3	19.2	17.9	72.4	69.9	80.7	74.3	4	15	12	15	14	30	0	
Feb	2	2	3	6	4	15	31	21	0	2.74	0.62	11	5.8	5.0	5.0	5.3	16.7	21.8	20.3	19.6	67.3	61.6	74.3	67.7	5	16	7	11	2	27	0	
Mar	5	8	2	5	7	14	25	26	0	2.33	1.16	10	3.7	4.6	3.3	3.9	18.9	21.7	20.4	20.3	65.9	58.7	68.1	64.2	12	14	4	6	2	29	0	One 7 a. m. obs. missed.
Apr	8	9	11	6	9	17	14	16	0	2.83	1.34	12, 13	4.5	5.0	4.5	4.7	33.5	34.4	35.1	34.3	74.5	60.9	76.7	70.7	11	13	6	10	0	6	0	
May	6	11	10	14	7	18	16	11	0	5.11	3.00	22	4.9	5.7	5.4	5.3	45.8	46.1	46.0	46.0	76.1	64.0	79.7	73.3	7	15	9	12	0	0	0	
June	2	1	8	13	17	26	16	6	1	2.07	0.86	27, 28	5.1	4.9	4.2	4.7	58.9	58.8	59.4	59.0	75.9	60.6	81.8	72.8	11	11	8	12	0	0	1	
July	4	3	10	4	9	31	19	13	0	2.73	0.93	28	4.1	4.3	3.3	3.9	60.5	60.3	61.3	60.7	76.8	57.5	80.8	71.7	11	17	3	12	0	0	4	
Aug	8	7	6	7	3	16	28	15	3	0.39	0.29	16	3.0	4.8	2.6	3.5	54.7	54.7	55.9	55.1	73.0	53.1	74.4	66.8	15	12	4	5	0	0	2	
Sept	2	11	13	9	5	21	16	13	0	1.50	0.83	24, 25	4.3	4.8	5.0	4.7	49.6	49.3	50.8	49.9	80.7	61.3	79.3	73.8	11	11	8	9	0	0	0	
Oct	9	10	8	11	8	7	17	19	4	6.40	2.13	24	4.6	5.7	4.1	4.8	38.9	41.8	41.1	40.6	82.2	70.8	83.8	78.9	11	12	8	14	0	7	0	
Nov	1	3	7	4	11	22	20	20	2	2.08	1.32	26, 27	5.3	5.0	4.4	4.9	31.7	33.8	33.7	33.1	75.0	61.4	75.0	70.5	7	19	4	8	0	12	0	
Dec	12	3	0	3	11	18	18	28	0	3.71	1.63	17	6.1	5.7	6.1	6.0	19.5	23.8	23.6	22.3	77.0	72.6	83.4	77.7	7	14	10	14	8	25	0	
Sums..	69	71	82	88	94	214	249	216	11	35.48	......	......	57.8	62.3	53.6	58.0	443.8	465.8	466.8	458.8	896.8	752.4	938.0	862.4	112	169	83	128	26	136	7	
	Percentages.																								Percentages.							
Means.	6.3	6.5	7.5	8.0	8.6	19.6	22.8	19.7	1.0	......	......	......	4.8	5.2	4.5	4.8	37.0	38.8	38.9	38.2	74.7	62.7	78.2	71.9	30.8	46.4	22.8	35.1	7.1	37.3	1.9	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.24 a. m., 3.24 p. m., and 11.24 p. m., local time.
Correction for instrumental error of barometer used: From 7.24 a. m., January 1, to 11.24 p. m., December 31, inclusive, +.010 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.170; February, 0.160; March, 0.160; April, 0.160; May, 0.160; June, 0.150; July, 0.150; August, 0.150; September, 0.150; October, 0.160; November, 0.160; December, 0.160.

O. B. COLE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

BROWNSVILLE, TEX.

[Latitude, 25° 53′ N.; longitude, 97° 26′ W. Magnetic variation, 8° 30′ E. Elevation of barometer above sea-level, 59 feet. Elevation of exposed thermometer above ground, 19 feet. Elevation of rain-gauge above ground. 40 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.089	30.060	30.116	30.088	30.551	22	29.788	18	.763	50.6	62.2	53.5	55.4	79.0	19	25.9	21	53.1	64.9	46.4	1,641	2,216	2,056	5,913	36	S.	12
Feb	30.105	30.099	30.136	30.113	30.543	27	29.659	15	.884	54.7	64.0	57.8	58.8	82.5	16	27.0	5	55.5	68.2	51.9	2,244	3,044	2,729	8,017	33	S.	16
Mar	29.951	29.932	29.967	29.950	30.316	1	29.531	24	.785	62.6	74.8	65.0	67.5	89.3	25	45.0	8	44.8	76.4	59.4	1,678	2,672	2,711	7,061	32	S.	30
Apr	29.817	29.804	29.841	29.821	30.349	15	29.374	22	.975	70.0	81.1	71.9	74.3	90.6	21	57.7	17	32.9	83.2	67.6	2,132	2,997	2,820	7,949	38	S.	5
May	29.874	29.858	29.894	29.875	30.096	5	29.679	29	.417	74.4	86.2	77.0	79.2	95.3	11	58.0	23	37.3	88.7	71.7	1,623	2,938	2,700	7,261	34	S.	17
June	29.886	29.862	29.891	29.880	29.966	1	29.603	9	.363	79.1	89.3	81.6	83.3	95.0	17 23	70.0	27 28 30	25.0	91.1	76.4	1,231	2,289	2,191	5,711	24	S.	2
July	29.983	29.975	29.982	29.980	30.141	18	29.848	14	.293	78.0	91.9	80.0	83.0	98.0	20 29 30	69.0	1, 2	29.0	93.9	75.0	1,208	2,212	2,165	5,585	24	SE., S.	5 14 15
Aug....	29.947	29.932	29.952	29.944	30.038	14	29.810	12	.228	76.8	93.4	80.6	83.6	101.0	9	70.0	27	31.0	96.4	75.1	886	1,651	1,862	4,399	17	S., SE., S.	3 4 19
Sept ...	29.946	29 921	29.959	29.942	30.094	26	29.780	4	.314	71.7	85.4	76.0	77.7	96.0	16	57.0	22	39.0	87.8	70.0	632	1,198	1,187	3,017	20	N.	8, 21
Oct	29.917	29.881	29.936	29.911	30.203	31	29.699	28	.504	73.4	86.2	95.9	78.5	92.0	5, 8	56.0	26	36.0	87.9	71.6	809	2,045	1,734	4,648	30	S.	28
Nov	30.026	29.987	30.041	30.018	30.402	16	29.643	10	.759	64.4	75.8	67.3	69.2	88.6	11	46.0	28 29	42.6	77.7	63.1	1,133	1,873	1,762	4,768	28	S.	21
Dec	30.061	30.062	30.081	30.058	30.528	15	29.779	18	.749	57.7	67.9	60.2	61.9	80.0	6	38.0	16	42.0	69.5	55.8	1,633	2,374	2,105	6,112	29	S.	18
Sums..	359.602	359.343	359.796	359.580	......	....	......	....	.....	813.4	957.2	846.8	872.4	.....	....		....	....	985.7	784.0	16,910	27,509	26,022	70,441	....	....	....
																					Averages.						
Means.	29.967	29.945	29.983	29.965	30.551	*22	29.374	†22	......	67.8	79.8	70.6	72.7	101.0	‡9	25.9	*21	...	82.1	65.3	1,409.2	2,292.4	2,168.5	......	....	....	....

* January. † April. ‡ August.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	39	8	0	2	31	2	0	0	11	1.22	0.57	1	5.4	6.0	5.2	5.5	47.2	47.8	48.6	47.9	88.6	63.4	82.7	78.2	11	7	13	12	0	3	0	
Feb	33	9	1	3	37	0	0	0	1	1.01	0.29	8, 9	6.9	7.5	7.6	7.3	51.4	53.5	54.4	53.1	89.2	69.9	88.7	82.6	2	10	16	13	1	4	0	
Mar	14	6	20	8	34	2	0	0	9	0.63	0.29	7, 8	6.0	6.2	5.3	5.8	60.3	60.6	61.3	60.7	92.2	63.2	88.1	81.2	6	16	9	9	0	0	0	
Apr	9	15	18	6	33	1	1	0	7	0.38	0.14	29, 30	6.5	5.9	5.8	6.1	66.4	65.0	66.8	66.1	88.9	59.4	84.6	77.6	4	17	9	6	0	0	1	
May	2	7	18	20	39	1	1	0	5	0.83	0.39	4	4.9	5.0	3.8	4.6	69.5	67.1	70.7	69.1	84.4	54.5	81.6	73.5	8	18	5	5	0	0	12	
June	1	1	12	24	45	2	1	0	4	5.66	1.83	26	4.2	5.8	3.0	4.3	74.6	74.9	75.7	75.1	86.3	63.3	82.9	77.5	12	13	5	7	0	0	22	
July	0	0	8	41	38	4	0	0	2	4.02	2.34	1	3.6	6.6	2.1	4.1	74.7	72.9	75.7	74.4	90.0	57.0	87.3	78.1	14	11	6	4	0	0	26	
Aug	4	0	17	32	26	4	0	0	10	1.97	1.55	26, 27	4.3	6.7	0.7	3.9	74.3	70.6	74.6	73.2	92.1	48.8	82.3	74.4	12	15	4	8	0	0	28	
Sept	17	7	16	14	7	4	0	2	23	7.74	5.75	3, 4	5.4	8.3	3.6	5.8	69.3	69.6	71.8	70.2	92.5	61.8	87.4	80.6	7	13	10	9	0	0	12	
Oct	7	2	4	17	32	0	0	0	31	1.65	1.15	14	4.6	6.5	2.0	4.4	70.4	70.1	71.5	70.7	90.4	58.9	86.7	78.7	12	17	2	4	0	0	6	
Nov	26	0	7	12	16	0	1	5	23	3.32	1.12	12	5.7	6.4	5.5	5.9	60.9	63.5	63.0	62.5	89.6	67.7	86.6	81.3	4	17	9	11	0	0	0	
Dec	33	4	2	11	24	2	1	1	15	2.59	1.40	10, 11	5.3	7.5	4.9	5.9	55.6	56.9	57.3	56.6	93.6	70.2	90.5	84.8	8	14	9	8	0	0	0	
Sums	185	59	123	190	362	22	5	8	141	31.02	....	......	62.8	78.4	49.5	63.6	774.6	742.5	791.4	779.6	1,077.8	738.1	1,029.4	948.5	100	168	97	91	1	7	107	
	Percentages.																								Percentages.							
Means	16.9	5.4	11.2	17.3	33.1	2.0	0.5	0.7	12.9	.....	....	......	5.2	6.5	4.1	5.3	64.6	64.4	66.0	65.0	89.8	61.5	85.8	79.0	27.4	46.0	26.6	24.9	0.3	1.9	29.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.38 a. m., 1.38 p. m., and 9.38 p. m., local time.
Correction for instrumental error of barometer used: From 5.38 a. m., January 1, to 9.38 p. m., December 31, inclusive, +.002 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.060; February, 0.060; March, 0.060; April, 0.060; May, 0.060; June, 0.060; July, 0.060; August, 0.060; September, 0.060; October, 0.060; November, 0.060; December, 0.060.

JOHN McGLONE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

BUFFALO, N. Y.

[Latitude, 42° 53′ N.; longitude, 78° 53′ W. Magnetic variation, 3° 30′ W. Elevation of barometer above sea-level, 690 feet. Elevation of exposed thermometer above ground, 107 feet. Elevation of rain-gauge above ground, 98 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	8 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In.		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles.	Miles.			
Jan	29.356	29.333	29.355	29.348	29.784	4	28.687	20	1.097	18.9	22.6	20.6	20.7	47.5	21	—6.0	22	53.5	28.0	14.2	3,364	3,582	3,315	10,261	50	SW.	21
Feb	29.422	29.422	29.424	29.423	29.899	2	28.892	7	1.007	21.0	25.7	23.2	23.3	63.8	16	6.8	8	57.0	31.2	15.8	3,056	3,646	3,423	10,125	46	SW.	25
Mar	29.224	29.184	29.215	29.208	29.714	7	28.531	10	1.183	21.6	27.0	23.4	24.0	49.7	1	2.0	8	47.7	32.5	15.9	2,793	3,309	3,395	9,497	43	SW.	12
Apr	29.257	29.218	29.252	29.242	29.512	13	28.778	11	.734	37.6	44.1	39.0	40.2	82.6	14	18.8	1, 2	63.8	48.5	32.9	1,913	2,418	2,188	6,519	44	SW.	11
May.....	29.222	29.190	29.186	29.199	29.546	17	28.826	30	.720	47.7	53.0	49.4	50.0	80.7	18	35.0	13	45.7	58.2	42.8	2,456	2,922	2,556	*7,934	44	SW.	31
June	29.213	29.191	29.193	29.199	29.657	1	28.756	11	.901	61.1	67.2	63.1	63.8	81.8	5	45.7	1	36.1	72.3	57.0	2,000	2,649	2,005	6,654	46	SW.	11
July	29.258	29.227	29.238	29.241	29.474	20	28.925	12	.549	64.8	70.0	66.7	67.2	79.7	2	51.7	1	28.0	72.8	60.7	1,935	2,833	2,439	7,207	36	SW.	17
Aug....	29.324	29.299	29.311	29.311	29.560	27	28.978	2	.582	62.3	70.5	64.5	65.8	83.5	22	47.0	27	36.5	72.8	58.8	1,852	2,605	2,410	6,867	30	SW.	20
Sept.....	29.366	29.313	29.334	29.338	29.743	10	28.652	24	1.091	53.2	63.8	55.5	57.5	80.5	16	35.6	10	44.9	66.4	49.3	1,895	2,156	2,260	6,311	52	W.	25
Oct	29.395	29.369	29.386	29.383	29.949	16	28.530	29	1.419	45.6	52.3	47.2	48.4	77.8	9	29.8	17	48.0	55.3	41.4	2,033	2,595	2,379	*7,007	46	SW.	30
Nov	29.305	29.269	29.290	29.288	29.724	28	28.806	9	.918	41.6	46.5	42.4	43.5	66.0	5	17.4	16	48.6	51.5	35.4	3,425	3,634	3,403	10,462	53	W.	12
Dec	29.295	29.261	29.281	29.279	29.831	23	28.764	27	1.067	32.9	35.9	33.3	34.0	57.6	7	6.0	23	51.6	41.5	25.2	3,204	3,223	3,538	9,965	48	SW.	10
Sums	351.637	351.276	351.465	351.459	......	....	......	....	......	508.3	578.6	528.3	538.4	....	....	.....	....	....	631.0	448.9	29,926	35,572	33,311	98,809	....	....	......
																					Averages.						
Means	39.303	29.273	29.289	29.288	29.949	†16	28.530	†29	......	42.4	48.2	44.0	44.9	83.5	‡22	—6.0	§22	....	52.6	37.4	2,493.8	2,964.3	2,775.9	......	....	....	......

* For 30 days. † October. ‡ August. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from— North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. Total amount.	Any 3 consecutive 8 hourly measurements. Largest amount.	Date.	Washington time. Cloudiness (in tenths). 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum below 90°.	Remarks.
1883.										*In.*	*In.*						°	°	°	°												
Jan	2	21	3	8	15	33	7	4	0	1.69	0.32	17	8.6	8.6	7.5	8.2	15.2	16.8	15.8	15.9	84.7	78.0	81.4	81.4	0	9	22	16	19	31	0	
Feb	0	12	4	5	7	42	11	2	1	4.04	1.26	3, 4	7.1	7.6	6.0	6.9	17.5	19.8	18.8	18.7	85.9	78.2	83.0	82.4	5	8	15	20	19	26	0	
Mar	3	8	3	5	18	30	17	9	0	1.08	0.21	6	5.2	6.1	5.0	5.4	15.5	18.0	17.5	17.0	73.3	69.6	78.1	73.7	10	9	12	14	16	31	0	
Apr	5	23	0	9	24	17	4	8	0	2.34	0.73	5	6.7	6.5	4.7	6.0	30.5	31.5	31.3	31.1	76.5	64.4	75.6	72.2	7	13	10	12	1	10	0	
May	7	15	1	9	20	29	5	7	0	6.45	1.96	21, 22	7.0	6.9	5.3	6.4	39.9	41.2	41.4	40.8	76.4	68.4	76.7	73.8	7	10	14	17	0	0	0	
June	0	8	1	14	24	36	5	2	0	5.46	1.59	18	5.7	6.8	4.9	5.8	54.8	54.5	56.8	55.4	80.8	66.6	81.1	76.2	6	13	11	13	0	0	0	
July	7	9	0	2	20	46	7	2	0	3.35	0.87	22	6.4	6.0	4.7	5.7	59.4	59.0	58.2	58.9	82.9	69.6	75.3	75.9	6	16	9	13	0	0	0	
Aug	7	17	3	8	16	28	9	5	0	2.30	1.26	28, 29	5.1	4.4	2.2	3.9	54.7	56.2	56.1	55.7	76.8	62.5	75.0	71.4	14	14	3	9	0	0	0	
Sept	5	26	8	8	12	17	7	7	0	2.11	0.72	24, 25	5.6	6.6	4.5	5.6	47.3	48.5	50.2	48.7	81.2	59.4	83.1	74.6	8	11	11	12	0	0	0	
Oct	7	37	4	7	8	14	7	9	0	3.58	1.16	12, 13	5.8	7.0	6.3	6.4	40.3	38.8	40.6	39.9	82.2	62.5	78.8	74.5	6	11	14	12	0	4	0	
Nov	2	6	4	9	16	27	20	6	0	2.93	0.92	21, 22	6.7	7.1	6.3	6.7	34.2	33.8	33.1	33.7	75.6	63.4	71.0	70.0	4	12	14	16	1	10	0	
Dec	2	6	9	9	15	22	24	6	0	2.74	0.83	7, 8	7.4	8.4	7.1	7.6	23.5	24.3	24.0	23.9	68.4	63.8	68.8	67.0	0	14	17	16	6	23	0	
Sums ..	47	188	40	93	195	341	123	67	1	38.07	......	......	77.3	82.0	64.5	74.6	432.8	442.4	443.8	439.7	944.7	806.4	927.9	893.1	73	140	152	170	62	135	0	
	Percentages.																								Percentages.							
Means .	4.3	17.2	3.6	8.5	17.8	31.1	11.2	6.1	0.1	......	......	......	6.4	6.8	5.4	6.2	36.1	36.9	37.0	36.7	78.7	67.2	77.3	74.4	20.0	38.3	41.7	46.6	17.0	37.0	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.52 a. m., 2.52 p. m., and 10.52 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.52 a. m., January 1, to 10.52 p. m., October 31, inclusive, +0.006 inch.; from 6.52 a. m., November 1, to 10.52 p. m., December 12, inclusive, +0.001 inch.; from 6.52 a. m., December 13, to 10.52 p. m., December 31, inclusive, +0.007 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.790; February, 0.790; March, 0.780; April, 0.770; May, 0.740; June, 0.730; July, 0.720; August, 0.720; September, 0.730; October, 0.750; November, 0.770; December, 0.790.

WM. FINN,
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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

BUFORD, FORT, DAK.

[Latitude, 48° N.; longitude, 103° 56' W. Magnetic variation, 18° 30' E. Elevation of barometer above sea-level, 1930 (B) feet. Elevation of exposed thermometer above ground, 8 feet. Elevation of rain-gauge above ground, 0 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan. [1]	28.017	28.048	28.074	28.046	28.542	18	27.296	29	1.246	—7.6	0.7	—6.6	—4.5	45.0	9	—46.0	19	91.0	4.2	—15.3	1,495	1,701	1,964	5,160	47	W.	9
Feb. [2]	28.113	28.115	28.123	28.117	28.610	1	27.566	10	1.044	—2.1	12.7	4.2	4.9	41.0	28	—40.0	2	81.0	14.9	— 6.2	1,021	1,442	1,722	4,185	32	W.	7
Mar	28.070	28.051	28.059	28.060	28.598	2	27.392	17	1.206	16.3	28.7	21.2	22.1	53.0	23	— 7.0	18	60.0	31.5	12.2	2,017	2,159	2,273	6,449	55	W.	9
Apr	27.899	27.873	27.897	27.890	28.523	24	27.408	11	1.115	32.7	50.7	40.2	41.2	76.0	27	12.0	1	64.0	53.9	31.8	1,564	2,409	2,635	6,608	40	E.	20
May [3] ...	27.978	27.933	27.976	27.962	28.353	10	27.439	17	.914	40.9	60.0	47.7	49.5	87.0	21	22.0	10	65.0	62.2	38.9	1,761	2,572	2,752	7,085	36	W.	21
June [4] ...	27.900	27.872	27.886	27.886	28.158	2	27.600	10	.558	55.3	76.2	62.8	64.8	107.0	30	30.0	2	77.0	81.4	51.8	1,649	2,032	2,096	5,777	44	NW.	1
July	27.956	27.937	27.945	27.946	28.275	28	27.508	13	.767	56.5	79.4	63.3	66.4	96.0	25	40.0	17	56.0	83.4	52.1	1,601	2,531	2,676	6,808	54	W.	13
Aug.....	28.000	27.983	27.979	27.987	28.190	3	27.592	21	.598	54.6	76.3	63.8	64.9	96.0	16	36.0	22	60.0	81.6	53.2	1,702	2,500	2,494	6,696	39	NW., W.	18 19
Sept.....	28.075	28.053	28.048	28.059	28.585	21	27.658	12	.927	42.4	66.7	51.5	53.5	91.0	18	18.0	30	73.0	70.9	40.0	1,226	2,217	2,184	5,627	30	NW.	19
Oct......	27.943	27.936	27.963	27.947	28.396	19	27.416	17	.980	32.8	46.5	37.4	38.9	74.0	6	14.0	31	60.0	49.3	30.8	1,647	2,364	2,345	6,356	36	W.	29
Nov.....	27.917	27.891	27.911	27.906	28.528	13	27.428	20	1.000	16.7	30.6	19.9	22.4	58.3	12	—19.3	26	77.6	35.1	9.7	1,837	2,470	2,174	6,481	42	NW.	10
Dec. [5]	27.960	27.982	28.013	27.988	28.671	31	27.264	17	1.407	6.9	16.1	6.7	9.9	46.0	27	—34.0	31	80.0	20.6	— 1.2	1,429	1,909	2,117	5,455	40	W.	17 27
Sums..	335.828	335.674	335.874	335.794	......	....	......	...	......	345.4	544.6	412.1	434.0	.....	....	......	....	....	589.0	297.8	18,949	26,306	27,432	72,687	...	....	...
																					Averages.						
Means.	27.986	27.973	27.990	27.983	28.671	*31	27.264	*17	......	28.8	45.4	34.3	36.2	107.0	†30	—46.0	‡9	....	49.1	24.8	1,579.1	2,192.2	2,294.3	......	...	....	....

B.—Elevation determined by barometer. * December. † June. ‡ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.		Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1888.										*In.*	*In.*						°	°	°	°												
Jan.[1]	4	8	9	1	7	3	15	24	11	1.98	1.36	29	5.3	6.4	4.5	5.4	-12.6	-4.7	-11.2	-9.5	80.4	79.2	81.4	80.3	4	16	7	6	25	27	0	
Feb.[2]	2	4	2	2	7	7	26	17	16	0.36	0.27	15	1.6	3.3	2.5	2.5	-6.4	4.9	-1.9	-1.1	82.9	72.1	76.3	77.1	17	8	2	3	23	28	0	
Mar	14	13	16	5	6	10	11	14	4	0.91	0.59	30	5.0	6.4	4.7	5.4	10.2	21.3	16.2	15.9	76.4	74.0	81.0	77.1	8	15	8	7	15	30	0	
Apr	4	11	23	6	7	9	17	13	0	0.48	0.39	21, 22	3.0	4.3	3.6	3.6	26.5	30.7	31.1	29.4	78.0	50.5	71.8	66.8	14	13	3	4	2	14	0	
May[3]	6	15	15	6	7	9	12	15	0	0.59	0.20	23	3.6	5.8	3.3	4.2	34.4	36.4	35.9	35.6	77.0	45.1	65.2	62.4	8	13	3	6	0	4	0	
June[4]	5	8	11	7	12	9	13	13	3	0.97	0.56	21	3.8	5.3	5.4	4.8	50.0	53.5	52.9	52.1	82.7	48.5	71.5	67.6	9	13	5	12	0	1	6	
July	8	7	15	9	16	4	17	15	2	1.69	0.31	6	2.4	6.1	4.3	4.3	49.4	49.9	51.1	50.1	78.0	38.9	65.8	60.9	9	18	4	12	0	0	6	
Aug	7	18	21	11	4	3	16	11	2	1.96	0.70	10	3.1	5.0	2.3	3.5	50.3	54.5	51.0	51.9	85.7	49.3	65.2	66.7	14	14	3	7	0	0	3	
Sept	17	10	12	6	11	1	10	20	3	0.22	0.17	12	2.8	4.4	2.5	3.2	36.8	40.5	37.9	38.4	81.3	40.8	61.7	61.3	16	11	3	2	0	6	1	
Oct	13	9	19	14	8	2	20	4	4	1.41	0.45	9, 10	6.8	7.0	6.0	6.6	29.3	34.2	32.3	31.9	87.0	66.3	82.7	78.7	4	12	15	14	0	14	0	
Nov	5	10	8	2	14	8	27	15	1	0.14	0.04	27	5.0	6.4	6.0	5.8	13.7	18.9	14.7	15.8	87.9	63.9	80.1	77.3	4	18	8	6	14	30	0	
Dec.[5]	8	11	7	4	5	5	25	16	3	0.11	0.04	21, 22	4.4	6.2	3.9	4.8	3.9	10.3	2.4	5.5	87.7	79.2	82.9	83.3	8	12	7	5	17	28	0	
Sums	93	124	158	73	104	70	209	177	49	10.82	....	......	46.8	66.6	49.0	54.1	285.5	350.4	312.4	316.0	985.0	707.8	885.6	859.5	115	163	68	84	96	182	16	
	Percentages.																								Percentages.							
Means	8.8	11.7	14.9	6.9	9.8	6.6	19.8	16.7	4.6	....	....	......	3.9	5.6	4.1	4.5	23.8	29.2	26.0	26.3	82.1	59.0	73.8	71.6	33.2	47.1	19.7	23.0	27.0	51.0	4.5	

[1] Three 7 a. m., four 3 p. m., four 11 p. m., observations missed.
[2] One 7 a. m. observation missed.
[3] Four 7 a. m., four 11 p. m., observations missed.
[4] Three 7 a. m., three 3 p. m., three 11 p. m., observations missed.
[5] For 28¼ days.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.12 a. m., 1.12 p. m., and 9.12 p. m., local time.

Corrections for instrumental errors of barometer used: From 5.12 a. m., January 1, to 1.12 p. m., October 9, inclusive, +.013 inch; from 9.12 p. m., October 9, to 9.12 p. m., December 31, inclusive, +.021 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.230; February, 2.210; March, 2.160; April, 2.100; May, 2.000; June, 1.990; July, 1.960; August, 1.980; September, 2.020; October, 2.100; November, 2.160; December, 2.270.

A. SCHNEIDER,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CAIRO, ILL.

[Latitude, 37° 0′ N.; longitude, 89° 10′ W. Magnetic variation, 6° 30′ E. Elevation of barometer above sea-level, 377 feet. Elevation of exposed thermometer above ground, 44 feet. Elevation of rain-gauge above ground, 78 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.807	29.785	29.811	29.801	30.379	22	29.344	30	1.035	29.4	35.7	31.7	32.8	56.0	{ 26 27 }	7.0	21	49.0	39.7	24.8	2,298	2,333	2,421	7,052	36	NW., S.	10, 13
Feb	29.923	29.884	29.902	29.903	30.389	18	29.323	24	1.066	35.1	42.0	39.4	38.8	74.0	16	12.0	5	62.0	46.3	30.7	2,385	2,342	2,061	6,788	36	S., W.	16, 24
Mar	29.723	29.688	29.689	29.700	30.263	3	29.251	29	1.012	39.4	47.9	44.1	43.8	70.0	18	23.0	19	47.0	51.5	37.1	2,398	2,649	2,591	7,638	29	N.	28
Apr	29.594	29.558	29.564	29.572	29.978	3	29.007	22	.966	54.6	05.2	59.9	59.9	84.5	14	37.0	3	47.5	68.0	51.7	1,961	2,545	2,505	7,011	37	NE.	23
May	29.630	29.604	29.606	29.613	29.949	6	29.277	14	.672	60.0	71.0	64.6	65.2	83.5	9	38.0	22	45.5	73.9	56.5	2,136	2,943	2,646	7,725	40	SW.	28
June	29.620	29.585	29.589	29.598	29.893	1	29.280	10	.613	71.5	82.3	73.8	75.9	91.0	17	57.0	1	34.0	83.5	67.8	1,393	1,979	1,917	5,289	44	E.	21
July	29.706	29.679	29.683	29.689	29.977	18	29.359	12	.618	73.9	83.6	75.6	77.7	92.0	{ 4 12 21 22 24 }	60.0	30	32.0	85.3	70.2	1,190	1,709	1,720	4,619	46	N.	16
Aug	29.715	29.683	29.691	29.696	29.910	5	29.568	1, 11	.342	69.6	81.3	73.4	74.8	92.5	22	61.0	30	31.5	82.6	67.2	1,098	1,573	1,414	4,085	27	NE.	23
Sept	29 714	29.670	29.677	29.687	29.923	9	29.516	24	.407	61.2	76.2	66.7	68.0	89.0	2	47.0	9	42.0	77.1	59.6	1,294	1,871	1,525	4,690	32	N.	21
Oct	29.722	29.697	29.706	29.708	30.048	15	29.206	28	.842	55.8	65.1	59.6	60.2	85.0	8, 9	38.5	22	46.5	67.2	53.7	1,986	2,253	1,972	6,211	39	SW.	28
Nov	29.831	29.783	29.798	29.804	30.350	16	29.246	21	1.104	44.9	55.8	49.9	50.0	73.5	9	15.3	16	68.2	58.5	42.4	2,159	2,331	2,107	6,597	40	SW.	21
Dec	29.789	29.749	29.776	29.771	30.133	15	29.249	26	.884	37.5	47.2	41.6	42.1	71.0	1	13.8	19	57.2	51.2	33.9	2,013	2,250	2,331	6,594	35	NW., N.	16, 18
Sums	356.774	356.365	356.492	356.542	......	....	......	....	......	632.9	752.8	680.3	688.7	....	......	......	....	....	784.8	595.1	22,311	26,778	25,210	74,299	....	....	.....
																					Averages.						
Means	29.781	29.697	29.708	29.712	30.389	*18	29.007	†22	......	52.7	62.7	56.7	57.4	92.5	‡22	7.0	§21	....	65.4	49.6	1,859.2	2,231.5	2,100.8	......	....	....	.....

* February. † April. ‡ August. § January.

Month.	Winds at 7 am., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	28	11	6	10	11	14	4	8	1	2.74	1.30	27	7.1	6.8	6.2	6.7	25.2	27.9	25.8	26.3	84.0	73.9	79.0	79.0	6	10	15	16	7	22	0	
Feb	20	15	9	3	8	17	0	7	5	3.52	1.78	3, 4	6.4	6.4	5.5	6.1	29.1	33.7	33.2	32.0	78.5	74.3	79.1	77.3	8	5	15	14	3	15	0	
Mar	21	17	6	5	2	25	6	10	1	2.15	.69	29, 30	5.8	5.3	4.5	5.2	32.3	33.9	33.6	33.3	76.2	60.6	67.8	68.2	10	9	12	11	0	7	0	
Apr	14	15	3	6	28	14	4	6	0	5.64	2.27	5, 6	5.2	4.9	4.8	5.0	46.8	46.7	48.3	47.3	75.5	54.5	67.4	65.8	8	14	8	11	0	0	0	
May	20	10	2	6	20	21	5	9	0	3.85	1.96	19, 20	4.1	5.4	3.4	4.3	52.2	51.9	54.3	52.8	75.9	53.0	70.3	66.4	13	11	7	10	0	0	0	
June	13	5	1	10	13	30	6	12	0	6.11	2.57	9, 10	4.7	6.6	3.5	4.9	65.5	66.8	66.7	66.3	81.8	60.0	78.9	73.6	6	21	3	15	0	0	2	
July	12	13	3	5	15	39	1	3	2	7.95	2.29	16, 17	4.4	5.3	3.9	4.5	68.2	67.8	68.2	68.1	82.7	60.3	78.4	73.8	11	14	6	12	0	0	8	
Aug	29	23	6	3	4	15	1	5	7	1.73	1.29	1, 2	3.6	4.4	1.2	3.1	64.4	62.7	65.9	64.3	83.8	55.2	78.0	72.3	16	13	2	6	0	0	1	
Sept	18	19	2	1	8	27	5	6	4	.34	.18	4	3.5	2.9	2.5	3.0	55.3	55.5	59.4	56.7	81.3	50.1	77.8	69.7	16	12	2	4	0	0	0	
Oct	13	25	5	8	12	17	2	9	2	6.97	3.07	18	5.8	6.4	4.3	5.5	52.0	53.9	53.7	53.2	87.2	69.3	81.6	79.4	9	10	12	20	0	0	0	
Nov	17	12	4	8	23	23	3	0	0	4.36	1.97	21	4.9	4.6	3.8	4.4	38.3	38.5	41.0	39.3	77.8	55.6	72.6	68.7	13	9	8	11	0	7	0	
Dec	22	7	3	2	24	16	5	5	9	2.18	.70	28	6.5	4.6	5.0	5.4	30.4	34.0	33.0	32.5	75.0	62.1	72.7	69.9	10	9	12	12	1	11	0	
Sums	227	172	50	67	168	258	42	80	31	52.54	....	......	62.0	63.6	48.6	58.1	559.7	573.3	583.1	572.1	959.7	728.9	903.6	864.1	126	137	102	142	11	62	11	
	Percentages.																								Percentages.							
Means	20.7	15.7	4.6	6.1	15.3	23.6	3.8	7.3	2.8	.....	....	......	5.2	5.3	4.0	4.8	46.6	47.8	48.6	47.7	80.0	60.7	75.3	72.0	34.5	37.5	27.9	38.9	3.0	17.0	3.0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.11 a. m., 2.11 p. m., and 10.11 p. m., local time.
Correction for instrumental error of barometer used: From 6.11 a. m., January 1, to 10.11 p. m., December 31, inclusive, +0.040 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.420; February, 0.420; March, 0.420; April, 0.410; May, 0.400; June, 0.390; July, 0.390; August, 0.390; September, 0.400; October, 0.400; November, 0.420; December, 0.420.

WM. H. RAY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CANBY, FORT, WASH.

[Latitude, 46° 16′ N.; longitude, 124° 4′ W. Magnetic variation, 22° E. Elevation of barometer above sea-level, 179 feet. Elevation of exposed thermometer above ground, 6.67 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan																											
Feb																											
Mar																											
Apr																											
May																											
June																											
July																											
Aug																											
Sept.[1]	29.819	29.822	29.809	29.817	30.089	19	29.474	29	.615	57.6	62.9	59.5	60.0	86.4	21	48.5	19	37.9	66.5	55.1	2,150	2,448	2,454	7.052	56	S.	8
Oct	29.822	29.848	29.845	29.835	30.169	9	29.119	25	1.050	49.7	52.9	50.7	51.1	60.2	3	40.2	27	20.0	55.2	46.9	2,807	2,483	2,517	7.807	47	SE.	25
Nov	29.885	29.919	29.900	29.901	30.261	11	29.347	24	.914	46.4	48.4	47.2	47.3	56.8	12, 14	33.5	25	23.3	50.6	42.7	3,108	2,630	2,921	8,659	60	S.	26
Dec	29.878	29.884	29.888	29.883	30.262	7	29.211	25	1.051	43.3	45.5	44.0	44.3	57.0	14	29.6	31	27.4	48.3	40.2	2,550	2,904	3,479	8,933	56	S.	26
Sums																											
																					Averages.						
Means																											

[1] One 7 a. m., and one 3 p. m., observations missed.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan																																
Feb																																
Mar																																
Apr																																
May																																
June																																
July																																
Aug																																
Sept.[1]	13	3	6	16	32	0	12	6	0	3.15	.87	8, 9	3.5	4.2	3.7	3.8	54.6	55.1	54.7	54.8	90.7	77.8	86.3	84.9	15	4	10	12	0	0	0	Station opened 1st.
Oct	18	4	10	15	9	1	28	8	0	5.65	.89	7, 8	5.6	7.4	6.3	6.4	47.6	47.2	46.6	47.1	92.6	81.6	86.6	86.9	5	15	11	19	0	0	0	First frost 6th.
Nov	5	4	5	13	25	4	28	3	3	8.34	1.74	26	6.8	7.4	7.7	7.3	44.7	44.7	44.4	44.6	94.1	87.8	90.5	90.8	4	7	19	25	0	0	0	
Dec	5	5	7	33	11	9	14	5	4	5.87	.84	26	5.1	7.5	5.7	6.1	39.9	40.3	40.4	40.2	88.4	83.0	88.2	86.5	5	16	10	21	0	2	0	First heavy frost 31st.
Sums																																
	Percentages.																								Percentages.							
Means																																

[1] One 7 a. m., one 3 p. m., observations missed.

NOTE.—7 a.m., 3 p. m., and 11 p. m., Washington time, correspond with 3.52 a. m., 11.52 a. m., and 7.52 p. m., local time.
Correction for instrumental error of barometer used: From 3.52 a. m., September 1, to 7.52 p. m., December 31, inclusive, —.003 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: September, 0.200; October, 0.200; November, 0.200; December, 0.200.

J. H. YOUNG,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CAPE HENRY, VA.

[Latitude, 36° 56′, N.; longitude, 76° 0′ W. Magnetic variation, 2° 45′ W. Elevation of barometer above sea-level, 16 feet. Elevation of exposed thermometer above ground, 16 feet. Elevation of rain-guage above ground, 6 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.188	30.151	30.181	30.173	30.628	24	29.428	9	1,200	35.2	38.7	36.7	36.9	67.0	21	20.0	11, 13	47.0	42.5	30.7	2,804	2,832	2,978	8,614	52	N.	10
Feb	30.298	30.250	30.271	30.273	30.729	2	29.813	7	916	42.9	49.2	43.6	45.2	78.0	17	25.0	27	53.0	54.0	36.8	2,984	3,453	2,588	8,975	43	S.	25
Mar	30.027	29.947	29.995	29.990	30.523	5	29.341	10	1,182	39.4	47.8	41.4	42.9	73.0	19	12.0	5	61.0	51.6	34.0	3,922	4,098	3,883	11,353	52	NW.	15
Apr	30.014	29.971	30.009	29.998	30.387	14	29.488	23	899	51.2	57.0	51.1	53.1	79.0	6	35.0	1	44.0	59.7	45.5	3,326	3,432	3,311	10,069	50	NW.	16
May	29.992	29.947	29.967	29.969	30.304	18	29.359	21	945	60.5	68.3	62.0	63.6	91.0	9	46.0	1, 18	45.0	70.7	56.5	3,058	3,009	2,692	8,759	44	NW.	16
June	30.008	29.975	29.994	29.992	30.379	2	29.710	27	669	72.2	78.5	71.0	73.9	91.5	19	60.0	2, 16	31.5	80.9	67.2	2,152	2,559	2,403	7,114	42	NW.	27
July	30.035	29.998	30.020	30.018	30.263	21	29.679	24	584	75.1	83.5	73.8	77.5	96.0	23	65.0	2	31.0	85.8	69.9	2,191	2,516	2,043	6,750	46	N.	13
Aug	30.031	30.005	30.027	30.021	30.198	14	29.745	2	453	73.0	81.0	72.6	75.5	92.0	13	62.0	5	30.0	82.0	69.2	2,647	3,129	3,166	8,942	34	NE.	28
Sept	30.058	30.018	30.032	30.036	30.296	10	29.661	24	635	67.7	74.6	68.6	70.3	85.5	13	59.0	10, 25. 26	26.5	76.4	65.0	3,746	3,711	3,634	11,091	53	NE.	11
Oct	30.137	30.098	30.121	30.119	30.543	17	29.593	2	950	60.3	65.4	61.7	62.5	89.0	2	48.0	25	41.0	68.3	57.3	4,081	4,077	3,864	12,022	44	NW.	23
Nov	30.208	30.150	30.183	30.180	30.649	17	29.812	11	837	49.6	58.3	52.0	53.3	81.0	10	26.0	16	55.0	61.3	44.9	3,717	3,721	3,166	10,604	49	NW.	12
Dec	30.152	30.105	30.135	30.131	30.526	23	29.643	14	883	41.7	49.0	44.5	45.1	68.7	8	21.0	16	47.7	52.7	37.9	3,106	3,185	2,770	9,061	40	NW., N. NW.	2, 15, 17
Sums	361.149	360.615	360.935	360.900	......	...	......	...	.....	668.8	751.3	679.0	699.8	....	...	...	......	.....	785.9	614.9	37,734	39,722	35,898	118,354	..	....	......
																					Averages.						
Means	30.096	30.051	30.078	30.075	30.729	*2	29.341	†10	.....	55.7	62.6	56.6	58.3	96.0	‡23	12.0	†5	.....	65.5	51.2	3,144.5	3,310.2	2,991.5	....	..	....	......

* February. † March. ‡ August.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	28	7	3	5	7	13	9	19	2	5.34	1.25	6	5.8	7.2	7.0	6.7	31.5	34.0	32.9	32.8	86.6	84.4	86.2	85.7	5	13	13	13	3	15	0	
Feb	14	19	5	4	13	12	6	10	1	3.72	1.36	7, 8	5.8	6.2	4.6	5.5	37.8	40.4	38.0	38.7	82.2	72.5	81.4	78.7	9	9	10	10	0	1	0	
Mar	18	11	6	7	13	16	10	12	0	4.41	1.47	19, 20	5.7	5.6	4.2	5.2	31.5	31.2	32.5	31.7	74.1	56.0	73.0	67.7	8	15	8	13	1	14	0	
Apr	12	18	6	13	22	5	3	11	0	9.72	5.01	16, 17	5.8	6.1	5.5	5.8	46.9	46.8	45.7	46.5	86.0	70.3	82.8	79.7	7	12	11	12	0	0	0	
May	15	15	7	12	18	10	6	7	3	3.20	.92	13, 15, 16	5.1	4.3	3.2	4.2	53.0	53.4	55.2	53.9	78.7	62.8	79.9	73.8	14	10	7	11	0	0	1	
June.....	3	16	6	22	22	14	2	3	2	6.14	3.52	13, 14	5.3	4.8	3.0	4.4	66.7	66.0	67.1	66.6	83.2	66.5	88.3	79.3	9	17	4	13	0	0	2	
July	11	15	4	11	20	21	6	5	0	5.24	1.53	24, 25	5.1	4.2	3.6	4.3	68.2	67.1	67.7	67.7	79.5	59.6	82.0	73.7	10	17	4	13	0	0	6	
Aug	18	33	5	6	17	12	1	1	0	3.48	2.18	29, 30	4.7	4.9	2.9	4.2	66.5	67.2	66.6	66.8	80.7	61.0	81.7	75.5	10	17	4	6	0	0	3	
Sept	12	28	5	6	24	11	3	1	0	5.39	2.02	11, 12	6.5	6.6	5.6	6.2	62.6	63.8	62.8	63.1	84.6	70.7	83.0	79.4	7	8	15	8	0	0	0	
Oct	28	28	7	6	12	5	4	3	0	7.86	2.83	23	6.0	6.6	5.3	6.0	54.9	54.7	54.8	54.8	84.0	70.5	79.2	77.9	7	12	12	15	0	0	0	
Nov	16	7	5	4	19	18	2	16	3	.74	.46	26	4.2	4.7	3.7	4.2	40.2	43.2	42.7	42.0	71.5	59.0	71.7	67.4	12	10	8	8	0	2	0	
Dec	17	7	4	7	22	17	2	14	3	2.02	.60	23, 24	5.4	5.1	4.3	4.9	35.4	39.2	37.1	37.2	78.6	71.4	74.5	74.8	12	9	10	11	0	7	0	
Sums ..	192	204	63	103	209	154	54	102	14	57.26	..	....	65.4	66.3	52.9	61.6	595.2	607.0	603.1	601.8	969.7	807.7	963.7	913.6	110	149	106	133	4	39	12	
	Percentages.																								Percentages.							
Means .	17.5	18.6	5.8	9.4	19.1	14.1	4.9	9.2	1.4	.....	.....	....	5.4	5.5	4.4	5.1	49.6	50.6	50.3	50.2	80.8	67.3	80.3	76.1	30.1	40.8	29.0	36.4	1.1	10.7	3.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.04 a. m., 3.04 p. m., and 11.04 p. m., local time.

Correction for instrumental error of barometer used: From 7.04 a. m., January 1, to 11.04 p. m., December 31, inclusive, +.016 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; February, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

A. K. ALDERSON,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CAPE MAY, N. J.

[Latitude, 38° 56′ N.; longitude, 74° 58′ W. Magnetic variation, 4° 45′ W. Elevation of barometer above sea-level, 27 feet. Elevation of exposed thermometer above ground, 19 feet. Elevation of rain-gauge above ground, 6 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.170	30.128	30.150	30.149	30.630	24	29.463	10	1.167	31.7	36.5	33.3	33.8	50.0	3	11.0	24	39.0	40.7	27.5	3,824	3,449	3,613	10,886	46	NW.	22
Feb.[1]	30.262	30.233	30.248	30.248	30.745	2	29.715	7	1.030	37.1	41.9	39.2	39.4	56.5	17	21.0	2, 27	35.5	46.4	32.7	3,541	3,687	3,453	10,681	48	NW.	21, 27
Mar	29.987	29.909	29.947	29.948	30.483	8	29.285	10	1.198	36.1	41.6	38.6	38.8	56.0	14	17.0	8	39.0	45.1	31.5	4,367	4,606	4,614	13,587	56	W.	11
Apr.[2] ...	29.994	29.965	29.992	29.984	30.382	14	29.534	23	.848	46.2	51.8	47.6	48.5	62.5	27	29.0	1	33.5	55.0	42.7	2,893	2,683	3,146	8,722	48	NW.	25
May[3]	29.949	29.915	29.924	29.929	30.314	1	29.369	21	.945	57.5	64.8	58.0	60.1	74.0	29	43.0	17	31.0	66.2	53.6	3,681	3,578	4,061	11,320	41	(*)	16
June[1] ...	29.985	29.955	29.966	29.969	30.398	2	29.657	11	.741	67.2	72.5	66.2	68.6	81.0	20	55.0	2	26.0	74.5	63.6	2,618	2,666	3,430	8,714	50	NW.	27
July[4]	29.985	29.947	29.958	29.963	30.213	21	29.672	24	.541	71.0	78.2	71.8	78.7	89.0	22	59.0	1	30.0	79.9	68.4	3,200	2,900	3,293	9,393	49	W.	8
Aug.[5] ...	30.011	29.980	30.007	29.999	30.211	15	29.634	2	.577	69.0	76.7	69.2	71.6	86.0	22	57.0	31	29.0	78.4	65.7	2,606	3,044	2,815	8,465	47	NW.	2
Sept.[1] ...	30.059	30.016	30.023	30.033	30.361	10	29.588	24	.773	63.5	70.4	64.7	66.2	80.0	14	44.5	10	35.5	72.4	59.2	3,471	3,565	3,591	10,627	45	W.	25
Oct	30.138	30.089	30.118	30.115	30.564	17	29.422	29	1.142	54.2	60.9	55.5	56.9	74.0	2 12 13	38.0	16	36.0	63.3	49.8	3,383	3,546	3,257	10,186	46	S.	29
Nov	30.155	30.110	30.123	30.129	30.608	17	29.751	11	.857	45.6	51.5	47.8	48.3	64.0	10	22.0	17	42.0	54.6	41.0	4,609	4,298	4,227	13,134	72	NW.	12
Dec	30.107	30.059	30.089	30.085	30.620	23	29.461	27	1.159	37.8	41.7	39.7	39.7	57.0	5	14.0	23	43.0	45.4	33.4	4,438	4,140	4,037	12,615	61	W.	28
Sums ..	360.802	360.306	360.545	360.551	......	...	......	....	.....	616.9	688.5	631.6	645.6	.....	.....	.....	.....	.....	721.9	569.1	42,631	42,162	43,537	128,330	....	......	.....
																					Averages.						
Means.	30.067	30.026	30.045	30.046	30.745	†2	29.285	‡10	......	51.4	57.4	52.6	53.8	89.0	§22	11.0	‖24	....	60.2	47.4	3,552.6	3,513.5	3,628.1	....	....	....	.....

* Direction not known. † February. ‡ March. § July. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	25	10	2	4	10	7	6	29	0	5.00	1.00	9, 10	5.7	6.7	5.9	6.1	25.6	30.3	28.2	28.0	78.5	78.2	81.2	79.3	6	13	12	18	3	21	0	
Feb.[1]	11	6	11	9	12	7	5	19	1	5.67	1.48	11	4.5	6.9	4.9	5.4	29.2	33.5	32.6	31.8	73.2	72.7	77.9	74.6	4	18	4	14	0	12	0	
Mar	16	7	10	5	10	13	10	22	0	4.66	2.45	10	5.3	5.7	4.3	5.1	29.2	32.8	31.5	31.2	75.7	71.2	75.9	74.3	7	18	6	11	0	16	0	
Apr.[2]	6	13	10	11	15	6	2	11	0	4.69	2.22	22, 23	5.0	5.3	4.5	4.9	40.3	42.8	41.6	41.6	80.5	72.6	80.7	77.9	6	12	4	12	0	1	0	Last frost April 3.
May[3]	3	14	14	12	21	5	7	4	1	1.17	.31	27	4.0	4.8	4.3	4.4	50.6	54.4	52.3	52.4	78.7	70.2	81.1	76.7	9	13	8	8	0	0	0	
June[1] ...	4	3	9	22	32	8	4	3	1	5.59	1.83	13, 14	4.8	4.3	4.2	4.4	62.7	64.4	61.9	63.0	85.5	76.2	86.3	82.7	7	18	3	12	0	0	0	
July[4]	7	4	6	11	34	14	5	9	0	2.39	1.06	15	3.1	3.3	3.5	3.3	65.8	68.8	67.1	67.2	83.4	73.5	85.3	80.7	14	14	1	8	0	0	0	
Aug.[5] ...	6	20	10	5	21	7	5	14	0	3.03	1.08	29, 30	3.7	3.6	3.0	3.4	61.8	64.4	63.0	63.1	78.5	66.7	81.0	75.4	13	11	4	5	0	0	0	
Sept.[1]	7	31	4	4	18	7	4	10	1	4.59	2.80	11, 12	5.8	5.1	4.5	5.1	57.8	59.3	58.5	58.5	82.3	69.2	81.1	77.5	7	14	7	5	0	0	0	
Oct	21	26	7	12	10	7	3	7	0	8.63	2.99	23	5.9	6.3	4.0	5.4	47.8	51.0	48.0	48.9	80.1	71.5	76.7	76.1	10	12	9	12	0	0	0	First frost Nov. 13.
Nov	10	8	5	7	17	13	10	20	0	3.39	1.10	10	4.5	4.6	2.6	3.9	38.0	41.5	40.3	39.9	74.7	70.0	76.0	73.6	15	8	7	9	0	6	0	
Dec	12	6	5	5	16	12	11	24	2	3.81	1.39	24	5.8	6.1	4.0	5.3	32.3	35.3	34.2	33.9	80.5	77.9	80.4	79.6	8	15	8	13	0	12	0	
Sums ..	128	148	93	107	216	106	72	172	6	52.62	..	......	58.1	62.7	49 7	56.7	541.1	578.5	559.2	559.5	951.6	869.9	963.6	928.4	106	166	68	127	3	68	0	
	Percentages																								Percentages.							
Means .	12.2	14.1	8.9	10.2	20.6	10.1	6.9	16.4	0.6	.....	....	......	4.8	5.2	4.1	4.7	45.1	48.2	46.6	46.6	79.3	72.5	80.3	77.4	31.2	48.8	20.0	34.8	0.8	18.9	0	

[1] One 7 a. m., two 3 p. m., and one 11 p. m. observations missed.

[2] Six 7 a. m., seven 3 p. m., and five 11 p. m. observations missed.

[3] Four 7 a. m., five 3 p. m., and four 11 p. m. observations missed.

[4] Two 7 a. m. and one 3 p. m. observation missed.

[5] One 7 a. m., three 3 p. m., and one 11 p. m. observations missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.08 a. m., 3.08 p. m., and 11.08 p. m., local time.

Correction for instrumental error of barometer used: From 7.08 a. m., January 1, to 11.08 p. m., to December 31, inclusive, —.002 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.030: February, 0.030; March, 0.030; April, 0.030; May, 0.030; June, 0.030; July, 0.030; August, 0.030; September, 0.030; October, 0.030; November, 0.030; December, 0.030.

W. EASBY SMITH,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

CAPE MENDOCINO, CAL.

[Latitude, 40° 26′ N.; longitude, 124° 24′ W. Magnetic variation, 18° E. Elevation of barometer above sea-level, 637 feet. Elevation of exposed thermometer above ground, 5 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.			Monthly mean.	Self registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.		Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan.[1]	29.542	29.544	29.524	29.537	29.764	30	29.205	24	.559	43.0	46.8	45.1	45.0	.....	....	31.0	19	....	.....	40.1	3,239	3,308	3,530	[2]10,077	76	SE.	24
Feb.[3]	29.401	29.421	29.395	29.406	29.840	17	28.792	12	1.048	41.0	46.5	43.0	43.5	....	..	30.5	6	....	.....	37.3	4,116	3,498	4,515	[4]12,129	80	SE.	12
Mar.[5]	29.273	29.296	29.278	29.282	29.500	19	28.671	27	.829	47.9	52.0	49.4	49.8	[6]69.0	15	38.0	6, 10	31.0	54.7	43.9	3,148	3,223	4,235	[7]10,606	80	SE.	26
Apr	29.338	29.360	29.355	29.351	29.603	15	28.701	19	.902	44.9	49.5	45.8	46.7	57.0	25	36.0	13	21.0	52.4	42.0	3,297	3,434	3,946	[8]10,677	100	SE.	15
May ...	29.303	29.329	29.323	29.318	29.671	18	28.004	16	.667	48.3	53.2	48.4	50.0	74.0	26	38.0	14	36.0	57.4	44.7	......	......	......	....	([9])	SE.	3
June	29.329	29.357	29.338	29.341	29.625	4	29.074	9	.551	52.0	57.7	53.7	54.5	83.0	9	43.0	2	40.0	61.0	47.7	.....	......	......	......	....	....	...
July	29.294	29.322	29.301	29.306	29.502	19	29.101	3	.401	49.1	54.2	52.6	52.0	69.0	22	45.0	26	24.0	58.6	47.5	.....	......	......	......	....	....	...
Aug	29.325	29.352	29.341	29.339	29.469	15	29.145	3	.824	51.3	55.2	54.3	53.6	68.0	6, 17	46.0	7	22.0	60.3	49.2	.....	......	......	......	....	....	...
Sept	29.276	29.297	29.287	29.287	29.452	6	28.984	29	.468	56.9	62.6	59.6	59.7	90.0	22	46.0	1	44.0	67.6	52.9	1,155	1,157	1,157	[10]3,469	96	SE.	29
Oct	29.327	29.348	29.333	29.336	29.636	9	28.967	26	.669	50.4	54.9	52.2	52.5	64.5	12	43.0	15	21.5	58.1	48.0	4,855	4,527	5,215	14,597	82	SE.	24
Nov	29.450	29.473	29.455	29.459	29.622	28	29.166	8	.456	48.6	52.4	50.3	50.4	72.0	11	38.0	25	34.0	55.9	45.6	3,634	3,455	3,620	10,709	56	SE.	24
Dec	29.421	29.428	29.423	29.424	29.671	7	29.045	3	.626	48.3	50.4	49.4	49.4	71.0	16	40.0	14	31.0	55.3	43.6	4,086	3,832	3,977	11,895	72	SE.	27
Sums..	352.279	352.527	352.353	352.386	.....	....	......	....	......	581.7	635.4	603.8	607.1	...		....	....	....	.....	542.5	......	......	......	....	....	....	...
Means.	29.357	29.377	29.363	29.366	29.840	[11]17	28.671	[12]27	......	48.5	53.0	50.3	50.6	90.0	[13]22	30.5	[11]6	....	.....	45.2	......	......	......	....	....	....	...

[1] Eleven 7 a. m., nine 3 p. m., and nine 11 p. m. observations missed.

[2] For 19¾ days.

[3] Six 7 a. m. observations missed.

[4] For 27 days.

[5] One 7 a. m. observation missed.

[6] Four observations missed.

[7] For 26½ days.

[8] For 17¾ days.

[9] Hurricane.

[10] For 3 days.

[11] February.

[12] March.

[13] September.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent.)											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan.[1]	2	0	0	19	0	0	1	38	4	2.91	1.00	24	3.2	4.0	4.3	3.8	37.5	40.7	38.0	38.7	81.7	80.6	78.2	80.2	9	10	1	12	0	1	0	
Feb.[2]	3	4	0	19	1	2	0	38	11	2.86	1.16	12, 13	2.5	2.8	2.1	2.5	34.4	38.9	36.0	36.4	78.9	75.8	76.8	77.2	16	5	1	11	0	5	0	Last frost Feb. 16th.
Mar.[3]	7	3	1	41	2	4	0	27	7	1.68	.53	29, 30	3.0	3.0	3.2	3.1	42.8	47.1	43.4	44.3	84.1	85.3	83.5	84.3	20	1	9	7	0	0	0	
Apr	2	4	0	28	1	0	1	47	7	2.90	.76	2, 3	4.0	5.2	3.9	4.4	41.0	44.0	42.1	42.4	86.6	82.3	87.1	85.3	11	15	4	17	0	0	0	
May	5	1	0	20	0	3	1	48	15	1.67	.45	4	3.3	4.3	4.0	3.9	45.0	48.1	43.8	45.6	89.5	83.7	85.0	86.1	11	15	5	8	0	0	0	
June	6	0	0	4	0	1	0	73	6	.02	.02	3	1.2	.8	.8	.9	46.7	50.6	47.9	48.4	84.6	78.5	82.6	81.9	24	6	0	1	0	0	0	
July	0	0	0	11	0	0	0	65	17	0	0	......	.3	.7	1.0	.7	48.6	50.0	48.7	49.1	98.2	85.8	87.3	90.4	26	5	0	0	0	0	0	
Aug	1	0	0	4	0	0	0	82	6	0	0	......	1.1	.7	1.0	.9	49.9	50.8	50.1	50.3	95.2	85.9	86.6	89.2	26	4	1	0	0	0	0	
Sept	13	0	0	13	3	0	0	52	9	1.40	1.00	29	1.9	2.2	1.1	1.7	51.1	51.1	50.8	51.0	83.4	69.1	77.2	76.6	21	7	2	3	0	0	0	
Oct	14	4	0	20	1	1	0	51	2	2.12	.57	1	2.9	3.6	2.7	3.1	46.0	47.4	45.8	46.4	85.5	76.7	79.7	80.6	17	12	2	9	0	0	0	
Nov	21	5	0	12	2	1	0	42	7	1.36	.38	8, 9	2.8	3.2	2.0	2.7	42.3	46.2	42.2	43.6	81.4	80.2	76.8	79.5	15	12	3	8	0	0	0	
Dec	23	4	0	40	1	1	0	21	8	2.25	.80	25	4.2	4.2	4.4	4.3	41.6	45.5	42.9	43.3	81.0	84.8	80.9	82.1	12	14	5	9	0	0	0	
Sums	97	25	1	231	11	13	3	534	94	19.17	....	......	30.4	34.7	30.5	32.0	526.4	560.4	531.7	539.5	1,030.1	968.2	981.7	993.4	208	106	33	86	0	6	0	
	Percentages.																								Percentages.							
Means	9.2	2.4	0.1	21.8	1.0	1.2	0.3	55.1	8.9	.....	.....	......	2.5	2.9	2.5	2.7	43.9	46.7	44.3	45.0	85.8	80.7	81.8	82.8	59.9	30.5	9.5	24.2	0	1.6	0	

[1] Eleven 7 a. m., nine 3 p. m., and nine 11 p. m. observations missed.

[2] Six 7 a. m. observations missed.

[3] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 3.50 a. m., 11.50 a. m., and 7.50 p. m., local time.

Correction for instrumental error of barometer used: From 3.50 a. m., January 1, to 7.50 p. m., December 31, inclusive, +.041 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.700; February, 0.700; March, 0.690; April, 0.690; May, 0.680; June, 0.680; July, 0.680; August, 0.680; September, 0.680; October, 0.690; November, 0.700; December, 0.700.

A. P. LEAVITT,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CEDAR KEYS, FLA.

[Latitude, 29° 8′ N.; longitude, 83° 2′ W. Magnetic variation, 4° E. Elevation of barometer above sea-level, 22 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 35 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30. 167	30. 139	30. 175	30. 160	30. 611	23	29. 656	9	. 955	55. 5	62. 1	57. 9	58. 5	72. 0	26	32. 0	12	40. 0	64. 6	52. 7	2, 246	2, 354	2, 093	6, 693	42	W.	9
Feb	30. 240	30. 203	30. 237	30. 227	30. 561	28	30. 028	23	. 533	63. 4	71. 2	66. 1	66. 9	79. 0	16	43. 0	28	36. 0	72. 9	62. 0	1, 796	1, 909	1, 553	5, 258	23	NE.	26
Mar	30. 067	30. 033	30. 061	30. 054	30. 474	1	29. 664	25	. 810	57. 3	66. 0	60. 7	61. 3	74. 0	30, 31	45. 0	13	29. 0	67. 6	54. 5	2, 081	2, 310	2, 414	6, 805	32	E.	24
Apr	29. 998	29. 965	29. 989	29. 984	30. 191	3	29. 698	23	. 493	70. 1	76. 7	71. 1	72. 6	86. 0	14	55. 0	26	31. 0	78. 5	66. 6	2, 401	2, 507	2, 213	7, 121	71	S.	23
May	30. 033	29. 987	29. 997	30. 006	30. 171	25	29. 647	21	. 524	72. 4	80. 1	72. 9	75. 1	87. 0	13	50. 0	23	37. 0	81. 2	68. 1	2, 275	2, 377	2, 344	6, 996	30	NW.	21
June	30. 050	30. 013	30. 032	30. 032	30. 167	5	29. 859	25	. 308	79. 9	86. 6	79. 7	82. 1	90. 8	17	70. 3	26	20. 5	88. 2	76. 1	2, 219	2, 347	2, 444	7, 010	34	N.	22
July ...	30. 111	30. 078	30. 094	30. 094	30. 282	22	29. 975	13	. 307	81. 7	88. 3	81. 5	83. 8	92. 5	5	69. 4	20	23. 1	89. 8	77. 9	2, 174	2, 048	2, 302	6, 524	42	N.	19
Aug	30. 034	29. 994	30. 029	30. 019	30. 184	14	29. 828	29	. 356	80. 9	89. 1	81. 0	83. 7	96. 0	6	72. 2	29	23. 8	90. 5	77. 2	1, 744	1, 844	1, 904	5, 492	29	SW.	9
Sept.....	30. 016	29. 973	30. 013	30. 001	30. 196	28	29. 805	21	. 391	74. 7	85. 8	78. 5	79. 7	90. 3	3	65. 5	26	24. 8	87. 0	72. 6	1, 701	1, 768	1, 630	5, 099	28	S.	24
Oct.....	30. 063	30. 013	30. 054	30. 043	30. 201	6	29. 868	12	. 333	72. 8	81. 1	75. 0	76. 3	87. 5	6, 7	59. 0	25	28. 5	82. 0	70. 2	1, 535	2, 003	1, 997	5, 535	23	NE.	18
Nov	30. 167	30. 108	30. 153	30. 143	30. 361	16	29. 962	25	. 399	61. 4	71. 6	64. 3	65. 8	80. 2	11	43. 3	2	36. 9	72. 8	58. 1	1, 903	2, 055	1, 799	5, 757	28	N.	28
Dec	30. 189	30. 131	30. 168	30. 163	30. 297	20	29. 977	26	. 320	58. 0	67. 5	62. 1	62. 5	75. 4	7	30. 2	16	45. 2	68. 9	55. 5	1, 411	1, 623	1, 205	4, 239	29	NW.	15
Sums..	361. 135	360. 637	361. 002	360. 926	......	......	.....	....	......	828. 1	926. 1	850. 8	868. 3	....	......	......	.....	..	944. 0	791. 5	23, 486	25, 145	23, 898	72, 529	....	....	....
																					Averages.						
Means	30. 096	30. 053	30. 084	30. 077	30. 611	*23	29. 647	†21	.....	69. 0	77. 2	70. 9	72. 4	96. 0	‡6	30. 2	§16	....	78. 7	66. 0	1, 957. 2	2, 095. 4	1, 991. 5	......	....	....	....

*January. †May. ‡August. §December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	22	11	10	27	5	4	6	0	5.66	2.19	8, 9	4.6	5.9	4.6	5.0	50.4	54.3	52.5	52.4	83.5	77.6	82.6	81.2	8	15	8	11	0	0	0	
Feb	8	17	14	13	10	7	5	10	0	.04	.04	1	3.6	3.9	2.8	3.4	57.4	57.0	58.4	57.8	81.9	64.7	76.9	74.5	17	6	5	1	0	0	0	
Mar	8	15	9	3	19	9	15	14	1	5.03	1.88	19	4.6	4.3	2.7	3.9	50.4	51.4	51.9	51.2	79.3	62.4	73.9	71.9	14	11	6	4	0	0	0	
Apr	8	11	9	9	23	16	7	6	1	4.12	.75	30	4.1	4.9	2.3	3.8	63.9	64.1	65.0	64.3	81.6	67.2	81.6	76.8	18	4	8	10	0	0	0	
May	11	14	10	6	10	11	20	11	0	1.97	.98	1	3.6	3.1	2.4	3.0	63.2	63.9	64.6	63.9	73.2	59.5	76.0	69.6	17	11	3	7	0	0	0	
June	3	12	9	5	12	19	27	3	0	4.05	2.53	25, 26	5.3	5.1	3.0	4.5	73.5	73.6	73.0	73.4	81.0	65.5	80.2	75.6	4	24	2	11	0	0	3	
July	5	8	8	7	5	25	33	1	1	5.09	1.75	21	3.4	3.7	1.1	2.7	74.7	74.2	74.2	74.4	79.6	63.5	78.5	73.9	21	9	1	10	0	0	17	
Aug	8	18	20	4	4	14	21	3	1	3.37	1.80	7, 8	3.9	4.4	3.4	3.9	75.5	74.1	73.2	74.3	84.1	61.8	77.9	74.6	13	15	3	7	0	0	25	
Sept	20	25	10	0	7	9	13	5	1	2.77	1.80	24, 25	2.6	3.8	1.9	2.8	69.9	69.6	71.1	70.2	85.3	59.7	78.5	74.5	17	12	1	5	0	0	2	
Oct	14	29	9	3	2	10	17	4	4	.23	.07	22, 23	2.8	3.9	2.5	3.1	69.0	70.4	69.4	69.6	88.0	70.5	83.1	80.5	17	12	2	6	0	0	0	
Nov	28	25	10	5	7	3	10	2	0	.93	.51	12	2.9	3.4	2.0	2.8	55.4	59.9	58.0	57.8	82.2	68.4	80.7	77.1	20	6	4	4	0	0	0	
Dec	7	15	18	9	15	6	12	7	4	.32	.20	25	2.8	2.3	1.4	2.2	54.6	60.0	58.4	57.7	89.2	78.0	88.3	85.2	23	7	1	3	0	1	0	
Sums	128	211	137	74	141	135	184	72	13	33.58	....	......	44.2	48.7	30.1	41.1	757.9	773.1	769.7	767.0	988.9	798.8	958.2	915.4	189	132	44	79	0	1	47	
	Percentages.																								Percentages.							
Means	11.7	19.3	12.5	6.7	12.9	12.3	16.8	6.6	1.2	.....	.....	......	3.7	4.1	2.5	3.4	63.2	64.4	64.1	63.9	82.4	66.6	79.8	76.3	51.8	36.2	12.1	21.6	0	0.3	12.9	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.36 a. m., 2.36 p. m., and 10.36 p. m., local time.

Correction for instrumental error of barometer used: From 6.36 a. m., January 1, to 10.36 p. m., December 31, inclusive, +.002 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; February, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

GEO. W. DAVIS,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CHARLESTON, S. C.

[Latitude, 32° 47′ N.; longitude, 79° 56′ W. Magnetic variation, 1° 30′ E. Elevation of barometer above sea-level, 52 feet. Elevation of exposed thermometer above ground, 40 feet. Elevation of rain-gauge above ground, 53 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°			*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.139	30.102	30.141	30.127	30.616	23	29.518	9	1.098	48.1	55.2	51.0	51.4	69.0	6	25.0	12	44.0	57.8	45.1	1,577	1,764	1,588	4,929	24	W.	9, 10
Feb.*	30.238	30.200	30.233	30.224	30.504	27	30.001	7	.503	52.9	62.7	55.5	57.0	78.0	17	39.0	{19 27}	39.0	65.5	50.1	1,559	1,936	1,847	5,342	24	E., NE.	{12 18
Mar.*	30.014	29.953	29.970	29.979	30.397	1	29.560	20	.837	48.4	59.5	53.6	53.8	74.0	{29 30}	36.0	9	38.0	63.4	45.9	1,740	2,558	2,305	6,603	32	E.	25
Apr	29.981	29.947	29.976	29.968	30.303	4	29.550	23	.753	61.1	67.9	63.0	64.0	81.5	7	45.0	3	36.5	71.6	58.5	1,895	2,614	2,119	6,628	28	NW.	17
May	29.985	29.937	29.955	29.950	30.209	18	29.429	21	.780	67.5	75.9	68.9	70.8	91.0	15	48.0	23	43.0	79.5	63.6	1,678	2,462	2,294	6,434	41	NE.	1
June	29.989	29.956	29.980	29.975	30.213	4	29.739	26	.474	78.3	84.9	77.8	80.3	99.0	21	64.6	2	34.4	89.0	73.7	1,438	2,176	2,115	5,729	24	NE.	1, 14
July	30.024	29.994	30.015	30.011	30.273	22	29.789	13	.484	81.0	88.5	80.6	83.4	101.0	17	71.0	30	30.0	92.1	76.6	1,416	2,101	2,127	5,644	32	NW.	30
Aug	29.987	29.953	29.979	29.973	30.130	14	29.773	29	.357	76.4	85.3	78.1	79.9	96.0	2	65.0	31	31.0	87.8	73.7	1,359	1,986	1,837	5,182	28	NE.	7
Sept	29.983	29.949	29.975	29.969	30.196	27	29.605	11	.591	70.6	79.3	72.9	74.3	90.0	5	58.0	11	32.0	81.4	68.5	1,510	2,209	2,065	5,784	31	N.	10
Oct	30.049	30.010	30.042	30.034	30.350	17	29.745	12	.605	65.5	73.6	68.0	69.0	93.0	3	53.0	24	40.0	76.0	63.5	1,932	2,451	2,214	6,597	26	NE.	4
Nov	30.165	30.113	30.148	30.142	30.525	16	29.856	14	.669	54.9	65.2	58.1	59.4	80.0	{10 11}	30.0	17	50.0	66.8	52.1	1,662	2,129	1,697	5,488	22	N.	27
Dec	30.123	30.079	30.120	30.107	30.318	7	29.755	14	.563	51.2	61.9	55.0	56.0	75.0	9	29.3	16	45.7	63.8	49.0	1,322	1,770	1,464	4,556	24	NE.	4
Sums	360.677	360.193	360.534	360.468	......	...	......	....	......	755.9	850.9	782.5	799.3	......	....	......	....	....	894.7	720.8	19,088	26,156	23,672	68,916	...	....	....
																					Averages.						
Means	30.056	30.016	30.044	30.039	30.616	†23	29.429	‡21	......	63.0	71.7	65.2	66.6	101.0	§17	25.0	†12	....	74.6	60.0	1,591	2,180	1,973	......	...	....	....

* One 11 p. m. observation missed. † January. ‡ May. § July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	5	21	13	3	1	20	10	9	11	4.06	1.12	18, 19	4.5	6.5	5.1	5.4	44.2	47.3	46.6	46.0	87.4	76.9	85.8	83.4	8	16	7	15	0	1	0	
Feb.[1]	6	20	12	1	0	27	5	9	3	0.92	0.49	12	4.2	6.6	3.2	4.7	48.9	53.0	51.1	51.0	81.0	72.9	85.4	81.8	10	11	6	4	0	0	0	
Mar.[1]	8	11	8	3	2	29	13	12	6	4.84	2.38	25	5.8	5.5	4.2	5.2	42.4	46.5	46.3	45.1	80.6	64.9	77.8	74.4	8	12	10	10	0	0	0	
Apr	7	11	20	4	2	30	5	7	4	3.47	1.66	9, 10	6.2	6.9	3.4	5.5	56.4	57.9	58.3	57.5	84.6	72.1	85.0	80.6	7	14	9	10	0	0	0	
May	7	6	9	6	9	36	11	6	3	8.62	5.58	1, 2	3.8	4.7	2.4	3.6	61.0	60.0	61.4	60.8	80.1	60.2	78.3	72.9	14	14	3	8	0	0	1	
June	3	13	11	2	7	37	12	2	3	2.88	0.76	8	5.2	5.3	3.3	4.6	71.6	71.5	72.5	71.9	80.6	66.0	84.0	76.9	8	17	5	8	0	0	14	
July	4	9	14	6	5	36	13	5	1	8.93	1.58	9, 10	5.2	5.6	3.6	4.8	75.6	77.6	76.9	76.7	84.0	71.5	89.1	81.5	7	18	6	13	0	0	19	
Aug	11	18	13	3	1	29	10	3	5	10.05	4.88	8	4.2	5.9	3.0	4.4	72.4	74.3	74.5	73.7	87.6	70.8	89.4	82.6	18	12	6	11	0	0	9	
Sept	14	21	19	3	3	16	9	2	3	2.36	0.76	24	4.9	6.0	4.3	5.1	67.7	70.2	70.2	69.4	90.1	75.3	91.4	85.6	11	9	10	12	0	0	0	
Oct	15	41	16	0	0	13	5	2	1	1.33	1.21	13, 14	5.6	6.3	4.6	5.5	63.0	66.2	65.6	64.9	91.7	78.8	92.4	87.6	7	15	9	5	0	0	1	
Nov	20	19	14	1	6	16	4	8	2	1.08	1.07	20, 21	4.5	5.7	3.6	4.6	50.0	51.4	52.0	51.0	84.3	64.1	81.2	76.5	9	18	8	3	0	1	0	
Dec	6	19	11	3	2	21	11	7	13	2.81	2.42	27	3.9	6.5	2.6	4.3	46.9	51.9	50.2	49.7	85.7	72.1	84.6	80.8	12	16	8	6	0	1	0	
Sums	106	209	160	35	38	310	108	72	55	51.35	....	......	58.0	71.5	43.8	57.7	700.1	727.8	725.6	717.7	1028.7	845.6	1024.4	964.6	114	167	82	105	0	8	44	
	Percentages.																								Percentages.							
Means	9.7	19.1	14.6	3.2	3.5	28.4	9.9	6.6	5.0	.....	.....	......	4.8	6.0	3.6	4.8	58.3	60.6	60.5	59.8	85.3	70.5	85.4	80.4	31.4	46.0	22.6	28.8	0	0.8	12.1	

[1] One 11 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.49 a. m., 2.29 p. m., and 10.49 p. m., local time.
Correction for instrumental error of barometer used: From 6.49 a. m., January 1, to 10.49 p. m., December 31, inclusive, —.028 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.060; February, 0.060; March, 0.060; April, 0.060; May, 0.050; June, 0.050; July, 0.050; August, 0.050; September, 0.050; October, 0.060; November, 0.060; December, 0.060.

J. H. SMITH,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CHARLOTTE, N. C.

[Latitude, 35° 13′ N.; longitude, 80° 31′ W. Magnetic variation, 1° 15′ E. Elevation of barometer above sea-level, 808 feet. Elevation of exposed thermometer above ground, 85 feet. Elevation of rain-gauge above ground, 47 feet.]

Month.	Barometer (corrected for temperature and instrmental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.299	29.260	29.291	29.283	29.692	23	28.770	10	.922	35.8	44.2	38.3	39.4	62.0	28	15.0	12	47.0	46.5	32.8	946	1,354	1,246	3,546	17	N., NW.	21, 22
Feb	29.436	29.402	29.417	29.418	29.742	2	29.076	7	.666	44.1	53.6	47.9	48.5	76.5	17	30.5	19, 27	46.0	57.9	40.8	1,134	1,547	1,193	3,874	20	NE.	18
Mar	29.186	29.124	29.147	29.152	29.602	1	28.713	10	.889	40.6	54.1	45.2	46.6	74.0	30	26.0	9	48.0	56.8	37.2	1,225	1,824	1,649	4,698	22	NW.	15
Apr	29.180	29.129	29.147	29.152	29.482	4	28.671	23	.811	52.8	65.9	58.2	59.0	82.0	13	34.0	1	48.0	68.4	49.9	1,204	1,528	1,359	4,091	20	S.	22
May	29.191	29.128	29.147	29.155	29.423	18	28.586	21	.837	62.9	75.7	66.4	68.3	85.5	15	40.5	23	45.0	77.7	58.7	841	1,347	1,334	3,522	21	NW.	15
June	29.209	29.154	29.188	29.184	29.458	2	28.972	26	.486	73.0	83.9	74.8	77.2	93.6	19	60.0	3	33.6	85.6	68.6	929	1,545	1,427	3,901	19	SW.	10
July	29.259	29.208	29.234	29.234	29.476	22	28.986	12	.490	75.7	87.0	78.8	80.5	97.5	24	64.5	20	33.0	89.0	71.8	818	1,285	1,097	3,200	29	NE.	24
Aug	29.238	29.188	29.211	29.212	29.390	31	29.019	29	.371	71.3	83.3	76.0	76.9	94.0	20	60.2	31	33.8	84.9	68.9	842	1,313	1,057	3,212	22	E.	21
Sept	29.241	29.197	29.214	29.217	29.416	1	28.951	24	.465	63.8	75.0	66.8	68.5	91.8	8	51.0	25	40.8	76.9	61.8	1,124	1,465	1,196	3,785	27	N.	11
Oct	29.307	29.259	29.285	29.284	29.648	17	28.867	29	.781	57.5	67.2	60.2	61.6	85.0	2	46.0	22	39.0	69.7	55.1	1,189	1,480	1,278	3,942	24	SW.	2
Nov	29.384	29.332	29.351	29.356	29.755	17	29.100	14	.655	45.8	59.5	51.8	52.4	78.2	10	19.8	17	58.4	62.4	48.7	1,119	1,496	1,149	3,764	21	N.	12
Dec	29.311	29.278	29.304	29.298	29.578	7	28.887	27	.691	42.0	52.7	46.1	46.9	66.6	2	22.6	16	44.0	55.0	39.2	917	1,222	963	3,102	25	W.	27
Sums ..	351.241	350.659	350.936	350.945	......	...	......	...	.....	665.3	802.1	710.5	725.8	.....	...	.....	.....	.....	830.8	627.0	12,288	17,406	14,948	44,687	...	....	.....
																					Averages.						
Means.	29.270	29.222	29.245	29.246	29.755	*17	28.586	†21	.....	55.4	66.8	59.2	60.5	97.5	‡24	15.0	§12	.....	69.2	52.2	1,024.0	1,450.5	1,245.2	......	...	....	.....

* November. † May. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	7	28	12	8	4	19	0	15	0	8.87	2.16	20, 21	4.8	6.9	5.8	5.8	32.3	33.7	32.3	32.8	87.1	70.1	81.6	79.6	6	16	9	14	2	13	0	
Feb	6	19	13	4	4	27	3	8	0	5.47	2.63	17, 18	5.3	7.2	5.4	6.0	38.3	40.8	39.8	39.6	81.4	67.4	76.5	75.1	8	9	11	12	0	3	0	
Mar	5	18	5	4	5	31	7	17	1	6.54	3.40	25, 26	6.5	5.8	2.6	5.0	32.1	31.3	31.5	31.6	72.0	45.3	62.1	59.8	6	20	5	11	0	8	0	
Apr	6	14	9	7	23	17	3	9	2	6.05	1.60	16	6.7	6.6	4.2	5.8	46.6	46.4	48.7	47.2	80.6	54.0	72.2	68.9	5	16	9	10	0	0	0	
May	13	8	5	4	15	28	6	9	5	1.39	.54	1	4.8	4.7	3.9	4.5	51.4	49.5	51.9	50.9	66.9	42.3	61.3	56.8	11	14	6	8	0	0	0	
June	4	13	7	2	18	28	12	6	0	5.45	1.76	21, 22	4.6	6.1	5.0	5.2	63.7	61.7	64.6	63.3	73.6	48.6	72.5	64.9	6	18	6	11	0	0	4	
July	12	12	5	2	17	29	7	9	0	5.23	2.21	24, 25	3.8	6.2	2.9	4.3	65.6	62.3	66.0	64.6	71.5	45.0	66.0	60.8	10	18	3	10	0	0	12	
Aug	13	28	11	5	10	7	9	7	3	2.00	.70	22	4.2	4.9	2.6	3.9	62.2	59.7	62.1	61.3	74.2	46.5	64.1	61.6	13	14	4	7	0	0	6	
Sept	6	30	8	8	4	23	7	4	0	4.00	1.21	5, 6	5.2	6.5	4.1	5.3	57.6	58.3	58.8	58.2	81.6	59.8	77.5	73.0	10	9	11	11	0	0	1	
Oct	14	39	12	4	5	9	5	4	1	4.31	1.16	5, 6	7.5	6.8	4.9	6.4	53.4	54.2	54.0	53.9	86.3	65.8	80.9	77.7	6	9	16	11	0	0	0	
Nov	16	17	2	4	10	27	4	9	1	4.65	2.42	25	4.3	4.7	3.3	4.1	37.8	37.5	39.4	38.2	74.4	48.4	65.0	62.6	13	10	7	9	0	2	0	
Dec	7	13	8	8	7	23	9	16	2	3.13	.61	14	3.9	5.6	4.8	4.8	34.3	36.3	35.2	35.3	75.1	57.7	67.1	66.6	11	12	8	12	0	4	0	First light frost Nov. 1st.
Sums	109	239	97	60	122	268	72	113	15	57.09	.....	.....	61.6	72.0	49.5	61.1	575.3	571.7	584.3	576.9	924.7	650.9	846.8	807.4	105	165	95	126	2	30	23	
	Percentages.																								Percentages.							
Means	10.0	21.8	8.9	5.5	11.1	24.5	6.6	10.3	1.4	.....	.....	.....	5.1	6.0	4.1	5.1	47.9	47.6	48.7	48.1	77.1	54.2	70.6	67.3	28.8	45.2	26.0	34.5	.5	8.2	6.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.45 a. m., 2.45 p. m., and 10.45 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.45 a. m., January 1, to 10.45 p. m., January 31, inclusive, —.006 inch; from 6.45 a. m., February 1, to 10.45 p. m., December 31, inclusive, —.005 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.890; February, 0.890; March, 0.880; April, 0.860; May, 0.840; June, 0.830; July, 0.830; August, 0.830; September, 0.840; October, 0.860; November, 0.880; December, 0.890.

D. O'DONOGHUE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CHATTANOOGA, TENN.

[Latitude, 35° 4′ N.; longitude, 85° 15′ W. Magnetic variation, 4° E. Elevation of barometer above sea-level, 783 feet. Elevation of exposed thermometer above ground, 43 feet. Elevation of rain-gauge above ground, 59 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.372	29.318	29.357	29.349	29.848	22	28.944	10	.904	37.0	46.3	41.5	41.6	65.0	27	14.0	12	51.0	49.9	34.1	1,504	1,573	1,577	4,654	25	S.	30
Feb	29.469	29.436	29.469	29.458	29.857	27	29.138	7	.719	45.7	53.3	48.8	49.3	74.0	15, 16	27.5	2	46.5	57.5	41.2	1,511	1,918	1,750	5,179	28	SW., NW.	11 21
Mar	29.266	29.207	29.244	29.239	29.660	1	28.769	31	.891	43.3	56.2	48.4	49.3	76.0	30	28.0	16, 20	48.0	59.1	40.0	1,581	2,073	2,012	5,666	27	NW.	19
Apr	29.205	29.156	29.178	29.180	29.528	3	28.719	22	.809	56.2	68.8	59.2	61.4	84.0	13	40.0	25	44.0	71.3	52.7	1,183	1,887	1,807	4,877	37	W.	22
May	29.249	29.194	29.214	29.219	29.437	6	28.721	20	.716	50.7	74.7	63.6	66.0	87.0	9	42.5	22	44.5	77.7	56.1	1,034	1,817	1,698	4,549	33	NW.	27
June	29.246	29.195	29.217	29.219	29.431	4	29.003	25	.428	70.8	84.1	73.4	76.1	93.0	24	56.0	1	37.0	86.6	67.8	832	1,506	1,446	3,784	21	SE.	3
July	29.316	29.263	29.287	29.289	29.546	22	29.041	12	.505	78.2	87.5	76.8	79.2	97.0	4, 22	62.0	10, 11	35.0	90.4	69.5	747	1,576	1,444	3,767	30	NW.	13
Aug	29.284	29.240	29.269	29.264	29.417	31	29.122	28	.295	69.0	81.6	72.7	74.4	93.0	21	60.5	31	32.5	84.6	67.0	609	1,304	1,171	3,087	20	SW., S. NW.	18 15 19
Sept	29.291	29.225	29.263	29.260	29.469	1	29.037	21	.432	63.1	79.7	68.4	70.4	91.0	4	51.0	27	40.0	81.1	62.2	652	1,150	1,174	2,976	17	NW.	16
Oct......	29.311	29.269	29.307	29.296	29.545	16	28.873	29	.672	59.2	70.8	62.4	64.1	83.0	13	44.0	31	39.0	72.1	58.0	1,082	1,490	1,133	3,705	24	S.	18 25
Nov	29.433	29.362	29.405	29.400	29.832	16	29.110	9	.722	45.4	59.2	50.6	51.7	76.0	9	17.0	16	59.0	61.0	43.1	1,062	1,558	1,386	4,006	28	N.	27
Dec	29.357	29.331	29.361	29.350	29.604	10	28.938	27	.666	41.7	51.8	45.0	46.2	66.0	1, 6	22.0	16	44.0	54.4	37.4	1,221	1,496	1,533	4,250	32	NW.	27
Sums..	351.799	351.196	351.571	351.523	.....	....	......	....	.....	664.8	814.0	710.8	729.7	....	.....	....	.....	....	845.7	629.1	18,018	19,348	18,134	50,500	...	....	....
																					Averages.						
Means.	29.317	29.266	29.298	29.294	29.857	*27	28.719	†22	.....	55.4	67.8	59.2	60.8	97.0	‡4, 22	14.0	§12	....	70.5	52.4	1,084.8	1,612.3	1,511.2	......	...	....	....

* February. † April. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from— North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. Total amount.	Any 3 consecutive 8 hourly measurements. Largest amount.	Date.	Washington time. Cloudiness (in tenths). 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	Remarks.
1883.										*In.*	*In.*						°	°	°	°												
Jan	4	14	8	9	17	11	15	18	2	9.31	2.96	20	6.6	6.9	6.4	6.6	31.1	33.9	33.8	32.9	79.1	64.4	75.3	72.9	7	8	16	16	0	12	0	
Feb	9	19	6	4	21	8	4	12	1	3.34	.90	4, 5	7.5	6.7	6.1	6.8	38.5	39.2	39.2	39.0	76.5	63.0	70.8	70.1	6	7	15	16	0	4	0	
Mar	9	8	3	6	7	23	14	18	0	4.95	1.88	30, 31	5.6	5.1	4.1	4.9	33.3	34.3	34.1	33.9	68.5	46.7	59.3	58.2	11	10	10	12	0	5	0	
Apr	7	8	3	13	19	16	9	12	3	6.55	2.55	22, 23	5.0	6.3	5.4	5.6	49.0	47.8	49.0	48.6	77.4	50.7	70.2	66.1	7	15	8	13	0	0	0	
May	11	7	5	7	15	19	8	18	3	2.45	1.04	1	4.2	5.7	3.3	4.4	52.5	52.0	53.7	52.7	77.8	47.5	70.9	65.4	11	15	5	5	0	0	0	
June......	8	9	2	6	15	17	10	17	6	2.25	.96	12, 13	4.5	6.3	3.1	4.6	65.2	64.6	66.3	65.4	82.8	53.2	78.9	71.6	9	18	3	12	0	0	7	
July......	13	10	2	2	2	27	17	15	5	2.06	1.42	12, 13	4.1	5.8	2.9	4.3	65.2	62.4	66.0	64.5	76.5	44.6	69.8	63.6	8	21	2	10	0	0	20	
Aug	14	17	7	4	4	19	8	13	7	5.31	1.98	7, 8	3.3	5.9	3.4	4.2	65.1	64.1	65.9	65.0	87.8	57.0	80.3	75.0	9	18	4	14	0	0	2	
Sept	10	11	3	5	11	10	12	18	10	3.40	1.21	23, 24	5.0	5.7	3.4	4.7	58.8	60.2	61.2	60.1	86.5	52.7	78.4	72.5	10	15	5	8	0	0	1	
Oct	7	20	2	6	22	9	8	11	8	3.93	1.36	29	6.1	6.5	5.2	5.9	56.1	58.7	57.4	57.4	89.7	67.1	84.7	80.5	9	9	13	12	0	0	0	
Nov	9	18	1	6	21	12	1	15	7	6.79	3.00	22	4.7	5.4	4.5	4.9	38.4	39.2	40.2	39.3	78.1	52.5	68.6	66.4	10	11	9	6	0	4	0	
Dec	8	20	6	7	21	11	6	14	0	3.82	1.00	24, 25	5.4	5.7	4.7	5.3	34.9	35.8	35.9	35.5	77.4	57.2	71.7	68.8	9	14	8	13	0	7	0	
Sums ..	109	161	48	75	175	182	112	181	52	54.16	....	......	62.0	72.0	52.5	62.2	588.1	592.2	602.7	594.3	958.1	656.6	878.9	831.1	106	161	98	137	0	32	30	
	Percentages.																								Percentages.							
Means .	10.0	14.7	4.4	6.8	16.0	16.6	10.2	16.5	4.7	.....	.....	......	5.2	6.0	4.4	5.2	49.0	49.4	50.2	49.5	79.8	54.7	73.2	69.3	29.0	44.1	26.8	37.5	0	8.8	8.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.27 a. m., 2.27 p. m., and 10.27 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.27 a. m., January 1, to 10.27 p. m., July 31, inclusive, +0.011 inch. From 6.27 a. m., August 1, to 10.27 p. m., December 31, inclusive, +0.003 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.860; February, 0.860; March, 0.850; April, 0.830; May, 0.810; June, 0.810; July, 0.800; August, 0.800; September, 0.810; October, 0.830; November, 0.850; December, 0.860.

B. L. GOULDING,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

CHEYENNE, WYO.

[Latitude, 41° 8′ N.; longitude, 104° 48′ W. Magnetic variation, 15° 30′ E. Elevation of barometer above sea-level, 6,105 feet. Elevation of exposed thermometer above ground, 51 feet. Elevation of rain-gauge above ground, 24 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).										Temperature.											Wind.						
	Washington time.										Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.		7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*		°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	23.853	23.851	23.889	23.864	24.194	7	23.487	12	.707		16.8	28.0	18.8	21.0	54.8	11	—31.3	20	86.1	31.6	9.3	2,914	4,379	3,890	11,183	49	NW.	29
Feb	23.983	23.971	24.009	23.988	24.436	26	23.363	15	1.073		12.0	28.6	16.2	18.9	55.0	28	—28.0	2	83.0	31.3	5.6	1,524	1,677	1,789	4,940	32	W.	10
Mar	23.975	23.962	23.975	23.971	24.502	2	23.606	30	.896		29.5	47.5	35.4	37.5	64.0	26	13.2	18	50.8	50.8	26.5	1,866	2,764	2,808	7,438	38	NW.	20
Apr	23.859	23.855	23.877	23.864	24.380	24	23.107	21	1.273		30.3	45.2	35.9	37.1	69.0	20	17.4	15	51.6	49.1	28.4	1,918	2,643	2,743	7,304	40	N., NW.	11, 21
May	23.948	23.938	23.971	23.952	24.290	20	23.413	17	.877		38.6	55.4	44.8	46.3	82.3	6	25.4	30	56.9	60.5	36.6	1,823	3,058	3,222	8,103	48	NW.	13
June	24.080	24.067	24.086	24.078	24.277	29	23.746	10	.531		48.0	67.5	57.1	57.5	90.8	30	33.5	13	57.3	73.3	45.7	1,328	2,054	2,058	5,440	28	NW.	17
July	24.144	24.128	24.138	24.137	24.295	24	23.864	15	.431		53.3	76.4	62.4	64.0	94.2	1	40.9	16	53.3	81.0	51.9	1,175	2,069	2,169	5,413	27	W.	13
Aug	24.179	24.162	24.182	24.174	24.336	27	23.924	21	.412		52.4	77.6	61.6	63.9	90.2	28	36.2	22	54.0	81.6	51.5	1,162	1,789	1,893	4,844	26	NW.	21
Sept.....	24.170	24.148	24.169	24.162	24.580	20	23.902	12	.678		45.1	60.3	51.6	55.3	83.2	1	30.0	21	53.2	72.8	43.4	1,412	2,168	2,010	5,590	26	NW., N.	6, 21
Oct	23.966	23.952	23.987	23.968	24.359	31	23.600	28	.759		33.1	47.8	37.1	39.3	73.4	7	6.8	24	66.6	51.3	30.4	1,780	2,707	2,504	6,991	48	NW.	29
Nov	23.979	23.957	23.985	23.974	24.390	11	23.509	25	.881		32.0	47.4	35.1	38.2	66.1	30	16.2	14	49.9	51.0	27.2	1,878	2,621	2,441	6,940	40	NW.	25
Dec	23.958	23.958	23.989	23.968	24.379	14	23.480	25	.899		26.5	35.3	27.0	29.6	60.2	2	—10.8	31	71.0	40.5	18.4	2,660	2,848	2,406	7,914	52	NW.	17
Sums..	288.094	287.949	288.257	288.100	......	....	......	....	......		417.1	626.0	483.0	508.6	......	....	......	....	....	674.8	374.9	21,440	30,777	29,933	82,100	...	....	.....
																						Averages.						
Means.	24.008	23.996	24.021	24.008	24.580	*20	23.107	†21	......		34.8	52.2	40.2	42.4	94.2	‡1	—31.3	§20	....	56.2	31.2	1,786.7	2,564.8	2,490.2	......	...	....	.....

* September. † April. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	14	1	3	0	4	9	21	41	0	.88	.63	30, 31	3.2	4.7	1.9	3.2	3.2	3.9	3.2	[1]3.4	48.0	37.1	46.8	[1]44.0	15	12	4	7	14	30	0	Deepest snow ever known here, January 30 and 31.
Feb	16	3	1	4	3	9	24	22	2	.25	.15	1	1.9	2.4	2.2	2.2	1.8	12.1	4.1	[2]6.0	56.5	44.6	55.2	[2]52.1	19	6	3	6	13	28	0	
Mar	17	8	1	4	5	13	11	31	3	.85	.34	30, 31	2.9	3.8	2.9	3.2	17.8	14.2	19.8	17.3	61.2	28.5	58.5	47.7	17	11	3	7	0	29	0	
Apr	17	9	5	3	14	7	7	25	3	2.76	.66	27	5.9	5.8	5.1	5.6	21.8	22.6	25.5	23.3	70.4	46.6	67.2	61.4	8	10	12	17	2	20	0	
May	21	8	5	7	9	13	9	19	2	3.68	.78	8, 9	6.1	6.2	4.6	5.6	30.7	28.1	38.4	30.7	74.1	42.0	65.6	60.6	8	11	12	17	0	5	0	
June	16	5	6	4	17	8	12	19	3	3.67	1.33	16, 17	3.7	4.1	3.1	3.6	39.9	41.6	43.1	41.5	74.4	42.7	61.8	59.6	13	12	5	12	0	0	1	
July	5	9	4	8	16	8	13	27	3	1.45	.42	3, 4	3.2	4.7	3.6	3.8	41.0	39.4	45.3	41.9	65.5	32.0	51.3	51.6	15	11	5	10	0	0	3	
Aug	9	8	7	5	17	12	12	17	6	2.18	.55	12	2.5	3.3	2.2	2.7	41.8	40.9	47.1	43.3	68.9	30.8	61.8	53.7	20	9	2	11	0	0	1	
Sept	14	5	1	3	12	13	6	32	4	.90	.71	7, 8	2.0	3.3	2.4	2.6	28.5	25.3	28.2	29.0	56.1	23.6	52.8	44.0	20	7	3	6	0	1	0	
Oct	14	4	1	3	18	20	10	23	0	1.66	.42	22, 23	4.2	4.5	3.1	3.9	23.2	23.4	23.5	23.4	69.5	42.6	61.6	57.9	13	12	6	10	1	16	0	
Nov	6	0	0	2	9	16	18	39	0	.16	.13	4, 5	1.3	5.0	2.5	2.9	14.8	8.1	14.9	12.6	53.3	24.4	48.0	41.9	16	13	1	4	0	22	0	
Dec	21	2	0	5	3	4	14	39	5	.80	.36	17, 18	2.8	3.5	2.0	2.8	13.5	14.3	15.4	14.4	61.6	46.8	63.4	57.3	22	5	4	8	6	29	0	
Sums	170	62	34	48	127	132	157	334	31	19.24	...	......	39.7	51.3	35.6	42.1	278.0	273.9	308.5	286.8	759.5	441.7	694.0	631.8	186	119	60	115	36	180	5	
	Percentages.																								Percentages.							
Means	15.5	5.7	3.1	4.4	11.6	12.1	14.3	30.5	2.8	....	...	......	3.3	4.3	3.0	3.5	23.2	22.8	25.7	23.9	63.3	36.8	57.8	52.6	51.0	32.6	16.4	31.5	9.9	49.8	1.4	

[1] Three 7 a. m.; one 3 p. m.; two 11 p. m., observations missed.

[2] Two 7 a. m.; three 3 p. m.; one 11 p. m., observations missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.09 a. m., 1.09 p. m., and 9.09 p. m., local time.
Correction for instrumental error of barometer used: From 5.09 a. m., January 1, to 9.09 p. m., December 31, inclusive, .00 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 6.270; February, 6.270; March, 6.200; April, 6.020; May, 5.890; June, 5.760; July, 5.710; August, 5.720; September, 5.880; October, 6.040; November, 6.230; December, 6.300.

EDGAR McGOVERN,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CHICAGO, ILL.

[Latitude, 41° 52′ N.; longitude, 87° 38′ W. Magnetic variation, 5° E. Elevation of barometer above sea-level, 661 feet. Elevation of exposed thermometer above ground, 70 feet. Elevation of rain-gauge above ground, 93 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	*29. 390	29. 371	29. 399	29. 387	29. 846	23	28. 676	10	1. 170	14. 6	19. 1	15. 2	16. 3	39. 9	13	−17. 2	22	57. 1	24. 8	8. 0	2, 113	2, 405	2, 622	7, 140	27	SW.	13
Feb	29. 529	29. 496	29. 502	29. 509	29. 968	18	28. 857	14	1. 111	18. 4	27. 3	23. 2	23. 0	57. 0	16	− 8. 8	1	65. 8	30. 5	14. 7	1, 880	1, 902	2, 007	5, 789	24	SW.	16 17
Mar	29. 320	29. 302	29. 317	29. 313	29. 804	7	28. 754	10	1. 050	28. 1	34. 7	31. 5	31. 4	61. 6	14	10. 2	7	51. 4	39. 3	24. 8	1, 818	2, 573	2, 313	6, 704	28	NE.	18
Apr	29. 243	29. 223	29. 222	29. 229	29. 543	2	28. 716	10	. 827	42. 1	48. 9	45. 9	45. 6	78. 3	14	28. 3	1	50. 0	54. 2	39. 6	2, 260	2, 603	2, 465	7, 328	33	NE.	22
May	29. 234	29. 215	29. 224	29. 224	29. 590	6	28. 784	14	. 806	50. 1	55. 3	51. 0	52. 1	80. 1	18	35. 9	21	44. 2	60. 5	45. 4	1, 931	2, 401	2, 373	6, 705	32	S.	18
June	29. 225	29. 207	29. 206	29. 213	29. 600	1	28. 838	10	. 762	61. 7	67. 6	63. 0	64. 1	83. 8	16	47. 8	10	36. 0	71. 2	57. 8	1, 661	2, 259	2, 052	5, 972	25	W.	19
July	29. 292	29. 277	29. 278	29. 282	29. 594	18	28. 951	12	. 643	66. 9	76. 2	69. 9	71. 0	91. 0	3	80. 9	9	40. 1	78. 9	62. 4	1, 542	2, 312	2, 047	5, 901	21	SW.	16
Aug	29. 376	29. 355	29. 358	29. 363	29. 621	6	29. 090	19	. 531	64. 6	72. 6	67. 6	68. 3	89. 0	19	54. 5	4	34. 5	74. 0	61. 7	1, 087	1, 822	1, 599	4, 508	20	W., SW.	20 22
Sept	29. 379	29. 345	29. 362	29. 362	29. 781	9	28. 909	24	. 872	56. 9	64. 7	60. 5	60. 7	83. 5	15	42. 0	26	41. 5	66. 6	54. 5	1, 314	1, 821	1, 648	4, 783	21	N.	16
Oct	29. 392	29. 374	29. 393	29. 386	29. 874	16	28. 734	29	1. 140	49. 0	54. 5	51. 8	51. 8	78. 5	8	38. 0	21	40. 5	57. 8	46. 8	1, 825	2, 149	1, 951	5, 925	21	E., NE., W.	17 25 31
Nov	29. 368	29. 339	29. 343	29. 350	29. 910	16	28. 855	9	1. 055	37. 1	45. 7	41. 7	41. 5	62. 0	4, 21	10. 0	16	52. 0	49. 9	34. 4	1, 967	2, 320	2, 153	6, 440	26	W., NW.	11
Dec	29. 342	29. 340	29. 365	29. 349	29. 755	22	28. 769	17	. 986	26. 7	33. 8	29. 9	30. 1	57. 0	7	0. 5	19	56. 5	38. 5	23. 4	1, 830	2, 253	1, 862	5, 945	26	NW.	27
Sums	352. 090	351. 844	351. 969	351. 967	......	....	......	....	......	516. 2	600. 4	551. 2	555. 9	......	....	......	....	.....	646. 2	473. 5	21, 228	26, 820	26, 092	74, 140	....	....	....
																					Averages.						
Means	29. 341	29. 320	29. 331	29. 331	29. 968	†18	28. 676	‡10	......	43. 0	50. 0	45. 9	46. 3	91. 0	§3	−17. 2	‡22	.....	53. 8	39. 5	1, 769. 0	2, 235. 0	2, 174. 3	......	....	....	....

* One 7 a. m. observation missed.

† February.

‡ January.

§ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	0	3	6	11	5	30	24	13	0	1.74	0.60	16, 17	[1]5.9	6.3	4.5	5.6	[2]8.7	10.0	8.3	9.0	[2]74.5	67.4	73.7	71.9	8	12	10	16	20	31	0	
Feb	1	5	9	3	6	26	25	8	1	4.74	1.94	16	4.1	5.6	5.3	5.0	11.2	15.2	14.7	13.7	73.2	61.6	70.1	68.3	7	15	6	12	13	26	0	
Mar	15	18	4	4	5	17	16	14	0	0.42	0.18	6	5.2	5.7	4.1	5.0	18.1	18.3	19.3	18.6	66.2	51.6	60.6	59.5	11	12	8	8	6	26	0	
Apr	18	15	11	6	13	16	9	0	2	3.72	1.32	5	6.0	5.2	3.5	4.9	32.9	33.2	33.6	33.2	70.9	57.6	63.8	64.1	9	15	6	11	0	2	0	
May	19	8	12	13	15	13	9	9	0	7.32	2.39	9, 10	7.5	7.3	5.4	6.7	42.1	41.2	41.9	41.7	74.7	61.2	72.0	69.3	4	14	13	17	0	0	0	
June	23	5	6	9	10	22	9	6	0	5.61	1.20	12	5.4	7.2	3.7	5.4	54.3	55.4	55.4	55.0	77.5	67.2	77.1	73.9	7	14	9	13	0	0	0	
July	14	2	5	10	10	32	11	6	2	5.53	1.77	4, 5	5.2	4.8	3.2	4.4	58.9	60.2	60.9	60.0	76.6	59.1	73.6	69.6	13	11	7	11	0	0	1	
Aug	15	17	9	8	4	24	6	6	4	1.21	1.05	27	2.9	4.5	3.0	3.5	55.8	56.9	57.7	56.8	73.8	59.4	71.3	68.2	16	10	5	4	0	0	0	
Sept	17	18	10	10	6	15	5	6	3	1.36	0.68	23	3.9	4.8	2.9	3.9	49.2	49.1	50.7	49.7	76.4	59.5	71.3	69.1	14	12	4	8	0	0	0	
Oct	14	17	12	11	6	10	7	8	8	7.36	1.94	25	7.0	7.4	6.4	6.9	42.0	42.2	42.5	42.2	77.8	65.6	71.9	71.8	6	8	17	19	0	0	0	
Nov	4	4	2	6	19	23	18	14	0	5.26	3.39	5, 6	4.6	5.0	3.5	4.4	28.8	32.0	30.7	30.5	71.9	60.9	65.9	66.2	14	7	9	9	2	12	0	
Dec	7	2	4	4	14	24	17	19	2	1.50	0.52	22, 23	4.8	6.7	3.7	5.1	19.4	24.0	21.1	21.5	73.8	67.4	69.5	70.2	9	15	7	11	8	22	0	
Sums	147	114	90	95	109	252	156	109	22	45.86	....	......	62.5	70.5	49.2	60.8	419.4	437.7	436.8	431.9	886.7	738.5	840.8	822.1	118	145	101	139	49	119	1	
	Percentages.																								Percentages.							
Means	13.4	10.4	8.2	8.7	10.0	23.0	14.3	10.0	2.0	.....	.....	......	5.2	5.9	4.1	5.1	35.0	36.5	36.4	36.0	73.9	61.5	70.1	68.5	32.4	39.8	27.7	38.1	13.4	32.6	0.3	

[1] One 7 a. m. observation missed.

[2] Two 7 a. m. observations missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.18 a. m., 2.18 p. m., and 10.18 p. m., local time.
Correction for instrumental error of barometer used: From 6.18 a. m., January 1, to 10.18 p. m., December 31, inclusive, —0.001 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.750; February, 0.750; March, 0.740; April, 0.730; May, 0.700; June, 0.690; July, 0.690; August, 0.690; September, 0.690; October, 0.710; November, 0.740; December, 0.760.

WILLIAM NORRINGTON,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CHINCOTEAGUE, VA.

[Latitude, 37° 55′ N.; longitude, 75° 23′ W. Magnetic variation, 3° 30′ W. Elevation of barometer above sea-level, 18 feet. Elevation of exposed thermometer above ground, 22 feet. Elevation of rain-gauge above ground, 26 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.170	30.135	30.167	30.157	30.640	24	29.446	10	1.194	31.7	35.9	32.7	33.4	52.0	21, 31	15.0	12, 24	37.0	39.3	27.8	2,848	2,759	2,737	8,344	44	NE.	10
Feb	30.270	30.237	30.263	30.257	30.760	2	29.785	7	.975	37.6	44.1	39.0	40.2	71.0	4	23.0	27	48.0	48.4	33.5	2,586	2,891	2,326	7,803	39	NW.	21, 27
Mar	30.002	29.932	29.972	29.969	30.485	5	29.240	10	1.245	35.3	42.8	38.0	38.7	63.0	{2, 14, 15}	17.0	8	46.0	46.7	30.6	3,331	3,515	3,391	10,237	45	NW.	15
Apr	30.002	29.961	29.996	29.986	30.406	14	29.513	23	.893	47.2	53.0	47.0	49.1	74.0	7	32.0	1	42.0	57.1	42.4	2,728	3,157	2,738	8,623	41	NE.	17
May	29.974	29.930	29.944	29.949	30.300	1	29.378	21	.922	57.5	64.6	57.9	60.0	78.0	9	42.0	1	36.0	67.6	52.7	2,642	2,936	2,583	8,161	40	NW.	15
June	29.995	29.960	29.975	29.977	30.407	2	29.684	27	.723	69.7	74.2	68.0	70.6	84.5	11	55.0	16	29.5	78.1	63.5	1,560	2,265	1,940	5,165	30	N.	14
July	30.013	29.977	29.990	29.993	30.244	21	29.678	24	.566	73.3	79.5	71.8	74.9	92.0	8, 23	63.0	{1, 10, 31}	29.0	82.2	67.5	1,812	2,318	1,863	5,993	46	N.	24
Aug	30.024	29.996	30.016	30.012	30.210	15	29.715	2	.495	70.8	76.6	69.7	72.4	90.0	22	61.0	31	29.0	78.4	66.1	1,858	2,701	2,061	6,620	26	NE.	30
Sept	30.060	30.019	30.026	30.035	30.337	10	29.617	24	.720	65.2	70.7	66.6	67.5	82.0	15	52.0	26, 27	30.0	73.0	61.6	2,241	2,828	2,299	7,368	32	NE.	11
Oct	30.140	30.094	30.116	30.117	30.569	17	29.507	29	1.062	56.4	61.3	58.1	58.6	83.0	2	44.0	24, 25	39.0	64.9	53.0	2,992	3,322	2,696	9,010	44	NW.	2
Nov	30.190	30.132	30.157	30.160	30.635	17	29.786	14	.849	45.9	52.8	48.5	49.1	72.0	10	24.0	16	48.0	56.7	41.8	2,849	3,338	2,533	8,720	48	NW.	12
Dec	30.130	30.080	30.112	30.107	30.568	23	29.534	27	1.034	38.2	44.2	40.3	40.9	63.0	5	21.5	16	41.5	47.5	33.6	2,556	3,042	2,438	8,036	50	NW.	28
Sums..	360.970	360.453	360.734	360.719	......	....	......	....	......	628.8	699.7	637.6	655.4	....	......	......	......	....	739.9	574.1	30,008	35,072	29,605	94,680	...	....	.....
																					Averages.						
Means.	30.081	30.038	30.061	30.060	30.760	*2	29.240	†10	......	52.4	58.3	58.1	54.6	92.0	‡8, 23	15.0	§12, 24	....	61.7	47.8	2,500.2	2,922.7	2,467.1	......	..	....	.....

* February. † March. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 8 consecutive hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	29	23	2	5	11	7	4	12	0	4.14	1.08	20	6.8	7.2	6.8	6.8	28.3	31.0	29.0	29.6	87.4	83.2	86.7	85.8	5	12	14	19	5	20	0	
Feb	12	12	14	4	19	6	3	13	1	2.53	.86	24, 25	5.0	5.9	5.2	5.4	30.4	33.5	33.1	32.3	76.4	68.0	80.1	74.8	6	17	5	12	0	10	0	
Mar	20	11	10	5	14	5	7	20	1	2.67	1.07	10	4.8	5.2	3.6	4.4	27.0	30.9	30.9	29.6	72.2	64.9	76.1	71.1	10	17	4	11	1	16	0	
Apr	11	18	8	18	24	4	3	9	0	2.77	.84	10, 11	5.8	6.1	4.9	5.4	42.0	43.7	42.7	42.8	83.1	73.4	85.6	80.7	9	14	7	13	0	0	0	
May	7	18	10	11	28	6	2	11	0	1.90	.85	11, 12	5.8	5.0	3.4	4.7	51.4	54.0	52.8	52.7	81.1	70.5	84.3	78.6	9	14	8	7	0	0	0	
June	3	1	12	21	40	5	4	4	0	1.26	.34	29, 30	4.3	4.4	3.2	4.0	65.9	65.7	64.9	65.5	88.4	75.5	90.6	84.8	12	17	1	12	0	0	0	
July	9	5	5	7	39	8	6	13	1	5.82	1.19	15, 16	3.8	3.7	2.9	3.5	68.4	68.5	68.5	68.5	85.1	70.2	89.7	81.7	15	14	2	18	0	0	4	
Aug	14	19	16	8	22	6	3	5	0	7.43	4.36	29, 30	4.2	4.2	3.0	3.8	65.0	64.6	65.0	64.9	82.8	68.3	85.8	79.0	13	14	4	9	0	0	0	
Sept	8	23	10	5	21	11	2	10	0	4.05	2.12	11	6.8	5.9	4.1	5.6	61.5	62.1	61.4	61.7	88.4	75.8	84.5	82.9	8	12	10	8	0	0	0	
Oct	22	21	8	11	12	4	2	10	3	6.65	3.10	22, 23	5.9	6.8	4.5	5.7	52.4	52.8	52.2	52.5	87.3	75.2	82.7	81.7	6	15	10	12	0	0	0	
Nov	19	9	3	5	24	8	3	17	2	1.21	.52	26	3.8	5.0	3.0	3.9	39.6	42.4	41.8	41.3	79.4	69.4	78.7	75.8	11	14	5	8	0	3	0	
Dec	16	7	3	4	9	19	9	23	3	1.92	.52	23, 24	5.8	4.5	4.1	4.8	33.2	34.9	34.2	34.1	83.0	72.5	79.6	78.4	10	12	9	11	0	14	0	
Sums ...	170	167	101	99	263	89	48	147	11	42.35	......	......	61.3	63.9	48.7	57.9	565.6	584.1	576.5	575.5	994.6	866.9	1,004.4	955.3	114	172	79	135	6	63	4	
	Percentages.																								Percentages.							
Means ...	15.5	15.3	9.2	9.0	24.0	8.1	4.4	13.4	1.0	......	......	......	5.1	5.3	4.1	4.8	47.1	48.7	48.0	47.9	82.9	72.2	83.7	79.6	31.2	47.1	21.6	37.0	1.6	17.8	1.1	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.07 a. m., 3.07 p. m., and 11.07 p. m., local time.

Correction for instrumental error of barometer used: From 7.07 a. m., January 1, to 11.07 p. m., December 31, inclusive, —0.013 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; February, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

CHAS. F. DICKENS,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CINCINNATI, OHIO.

[Latitude, 39° 6′ N.; longitude, 84° 30′ W. Magnetic variation, 3° E. Elevation of barometer above sea-level, 620 feet. Elevation of exposed thermometer above ground, 68 feet. Elevation of rain-gauge above ground, 78 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.512	29.471	29.500	29.494	29.995	22	28.843	10	1.152	28.4	35.2	29.2	30.9	59.0	30	6.0	22	53.0	39.3	24.8	1,331	1,744	1,585	4,660	24	SW.	30
Feb	29.627	29.590	29.600	29.606	30.044	18	29.110	24	.934	34.3	42.6	37.9	38.3	73.0	16	16.0	1	57.0	47.4	30.9	1,284	1,695	1,485	4,464	18	SW., SE.	20 24
Mar	29.400	29.360	29.387	29.382	29.846	3	28.911	10	.935	35.7	45.3	39.2	40.1	68.0	18	18.0	20	50.0	49.3	33.2	1,342	2,050	1,862	5,254	24	S.	18
Apr	29.343	29.313	29.322	29.326	29.698	3	28.846	23	.852	49.9	60.9	54.6	55.1	83.0	14	32.0	1	51.0	64.3	47.1	953	1,784	1,364	4,101	17	SW.	22
May	29.350	29.306	29.323	29.326	29.686	6	28.898	20	.788	57.6	68.9	61.3	62.6	85.0	9	35.0	22	50.0	71.6	54.5	1,063	1,925	1,704	4,692	22	SW.	14
June ...	29.343	29.306	29.322	29.324	29.693	1	28.994	10	.699	69.0	79.7	72.2	73.6	89.5	17	57.0	1	32.5	81.5	66.4	746	1,676	1,315	3,737	20	SW.	18
July	29.416	29.386	29.404	29.402	29.674	18	29.063	12	.611	71.8	83.0	75.4	76.7	94.0	22	60.5	9	33.5	85.0	68.9	747	1,656	1,421	3,824	17	SW.	13
Aug......	29.458	29.403	29.422	29.428	29.618	6	29.211	1, 28	.407	66.7	80.4	72.2	73.1	91.5	22	58.0	31	33.5	81.2	65.4	644	1,358	1,200	3,202	20	SW.	22
Sept	29.443	29.386	29.408	29.412	29.752	9	29.068	24	.684	60.2	73.8	66.0	66.7	88.0	2, 15	46.0	26	42.0	75.0	58.5	711	1,508	1,166	3,385	18	N., W.	18 24
Oct	29.466	29.446	29.467	29.460	29.859	16	28.852	29	1.007	55.2	63.0	57.2	58.5	82.0	9	39.6	16	42.4	65.3	53.2	1,104	1,631	1,313	4,048	20	W.	29
Nov	29.538	29.495	29.509	29.514	30.059	16	29.043	9	1.016	44.2	54.0	47.3	48.5	74.1	9	18.8	16	55.3	56.3	41.3	1,207	1,714	1,436	4,357	20	S.	21
Dec	29.479	29.453	29.474	29.469	29.819	22	28.912	16	.907	35.6	43.4	38.0	39.0	64.0	1	18.8	22	45.2	46.9	32.0	1,037	1,605	1,344	3,986	22	NW.	27
Sums..	353.375	352.915	353.138	353.143	......	...	......	....	......	608.6	730.2	650.5	663.1	.....	.....	.....	.....	....	763.1	576.2	12,169	20,346	17,195	49,710	....	....	....
																					Averages.						
Means	29.448	29.410	29.428	29.420	30.059	*16	28.843	†10	......	50.7	60.8	54.2	55.2	94.0	‡22	6.0	†22	....	63.6	48.0	1,014.1	1,695.5	1,432.9	......	....	....	....

* November. † January. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 8 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	16	4	14	8	8	15	14	12	2	2.82	0.78	27, 28	8.7	7.9	7.2	7.9	24.4	29.2	24.1	25.0	84.7	79.4	80.9	81.7	2	9	20	14	6	24	0	
Feb	12	9	3	7	11	11	16	14	1	3.22	1.96	10, 11	7.9	6.4	5.0	6.4	29.9	34.8	32.5	32.4	83.6	74.4	80.7	79.6	3	14	11	15	1	15	0	
Mar	10	20	8	6	8	16	9	15	1	3.48	1.73	29, 30	6.0	6.3	6.3	6.2	29.8	32.0	30.8	30.9	79.1	62.4	72.9	71.5	7	10	14	14	1	14	0	
Apr	11	17	14	10	9	13	4	8	4	3.72	1.32	22, 23	5.6	6.6	4.7	5.6	42.3	42.0	44.4	42.9	76.0	53.4	70.2	66.5	8	12	10	18	0	0	0	
May	6	5	4	14	14	14	9	21	6	5.49	1.76	21	5.4	6.2	4.2	5.3	48.2	48.9	49.7	48.9	71.9	52.0	67.1	63.7	10	12	9	18	0	0	0	Last frost May 23; last snow May 22.
June	1	7	8	16	17	17	11	10	3	3.61	0.97	10	5.6	6.5	4.0	5.4	60.8	61.2	62.8	61.6	75.5	54.2	73.0	67.6	7	14	9	17	0	0	0	
July	9	9	2	7	10	31	13	10	2	2.21	0.72	7, 8	3.9	5.7	4.0	4.5	63.1	61.2	64.2	62.8	74.4	48.7	68.8	64.0	13	12	6	10	0	0	6	
Aug	15	26	7	9	4	13	4	13	2	2.10	0.76	2	4.1	4.8	2.4	3.8	55.6	58.2	60.8	58.2	68.5	48.0	68.1	61.5	12	16	3	9	0	0	2	
Sept	13	27	10	11	4	11	10	4	0	1.83	0.91	23, 24	4.2	5.2	3.2	4.2	53.3	51.7	55.0	53.3	78.2	47.6	69.2	65.0	8	19	3	8	0	0	0	First frost Sept. 10.
Oct	5	26	8	19	6	10	8	10	1	3.39	3.06	28, 29	6.3	7.0	7.0	6.8	49.3	48.4	49.3	49.0	81.3	61.3	75.6	72.7	4	12	15	10	0	0	0	
Nov	4	9	3	16	14	19	4	20	1	4.87	2.23	21, 22	3.9	4.9	3.3	4.0	37.4	39.4	37.0	38.0	78.0	59.5	70.2	69.2	11	13	6	9	0	6	0	First snow Nov. 14.
Dec	8	5	6	15	8	21	10	15	5	5.61	2.60	23, 24	5.2	6.7	5.3	5.7	30.6	33.6	32.8	32.3	82.3	70.0	81.9	78.1	7	15	9	14	4	14	0	Damage by flood of Dec. 28, $50,000.
Sums ..	110	164	87	138	113	191	112	152	28	52.35	....	......	66.8	74.2	56.6	65.8	524.7	540.6	543.4	536.9	933.5	710.9	878.6	841.1	92	158	115	146	12	78	8	
	Percentages.																								Percentages.							
Means .	10.0	15.0	7.9	12.6	10.3	17.4	10.2	13.9	2.6	.....	....	......	5.6	6.2	4.7	5.5	43.7	45.0	45.3	44.7	77.8	59.2	73.2	70.1	25.2	43.3	31.5	40.0	3.2	20.0	2.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.30 a. m., 2.30 p. m., and 10.30 p. m., local time.
Correction for instrumental error of barometer used: From 6.30 a. m., January 1, to 10.30 p. m., December 31, inclusive, —.002 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.690; February, 0.690; March, 0.690; April, 0.670; May 0.650; June, 0.650; July, 0.640; August, 0.640; September, 0.650; October, 0.660; November, 0.690; December, 0.700.

L. DUNNE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

CLEVELAND, OHIO.

[Latitude, 41° 30′ N.; longitude, 81° 42′ W. Magnetic variation, 0° 30′ W. Elevation of barometer above sea-level, 690 feet. Elevation of exposed thermometer above ground, 73 feet. Elevation of rain-gauge above ground, 73 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°		*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.382	29.344	29.359	29.362	29.778	23	28.767	20	1.011	19.4	25.1	21.4	22.0	52.0	30	−5.0	22	57.0	29.8	14.4	2,474	2,634	2,473	7,581	38	W.	22
Feb	29.478	29.444	29.443	29.455	29.880	2	28.970	6	.910	24.4	30.1	27.9	27.5	72.0	16	5.0	1	67.0	36.2	19.1	2,172	2,522	2,333	7,027	28	SW., W.	{16 21 25
Mar	29.260	29.217	29.243	29.240	29.726	5	28.657	10	1.069	25.1	31.6	28.6	28.4	65.0	18	5.5	5	59.5	37.1	20.0	2,470	2,811	2,785	8,066	36	NW.	7
Apr	29.249	29.215	29.232	29.232	29.511	3	28.841	11	.670	40.9	47.5	43.6	44.0	85.0	14	19.3	2	65.7	53.0	35.7	1,613	2,259	1,702	5,574	30	SW.	11
May	29.229	29.185	29.184	29.199	29.550	6	28.737	14	.813	51.0	57.8	53.8	54.2	80.8	3	34.3	17	46.5	64.3	45.6	2,065	2,601	2,117	6,783	30	NE.	21
June	29.222	29.188	29.191	29.200	29.637	1	28.811	10	.826	64.1	72.0	65.7	67.3	85.5	18	44.4	14	41.1	75.3	59.0	1,644	2,266	1,627	5,537	27	W.	11
July	29.285	29.258	29.260	29.268	29.506	18	28.939	12	.567	67.3	75.8	69.0	70.7	92.0	4	49.6	1	42.4	78.1	62.6	1,699	2,260	1,847	5,806	39	W.	7
Aug	29.347	29.321	29.322	29.330	29.584	7	29.058	2	.476	62.6	72.7	65.5	66.9	92.5	22	47.8	30	44.7	75.3	59.0	1,495	1,901	1,589	4,985	24	N., S.	{2 22
Sept	29.362	29.315	29.326	29.334	29.711	10	28.842	24	.869	55.3	65.1	58.2	59.5	86.7	16	38.5	10	48.2	68.2	51.5	1,557	2,079	1,753	5,389	24	SW., N.	{25 29
Oct	29.382	29.357	29.375	29.371	29.871	16	28.580	29	1.291	48.8	55.9	51.1	51.9	82.8	9	33.5	17	49.3	59.5	45.6	1,758	2,328	1,986	6,072	31	SW.	29
Nov	29.366	29.340	29.359	29.355	29.851	16	28.822	9	1.029	40.2	46.6	42.2	43.0	70.5	9	14.6	15	55.9	51.7	35.7	3,207	3,272	2,952	9,431	40	W.	11
Dec	29.332	29.305	29.334	29.324	29.732	22	28.810	27	.922	30.4	34.6	31.7	32.2	60.8	13	11.3	23	49.5	39.9	25.2	2,663	2,886	2,848	8,397	29	NW.	2
Sums..	351.894	351.489	351.628	351.670	......	....	......	....	......	529.5	614.8	558.7	567.6	....	....	......	....	....	668.4	473.4	24,817	29,819	26,012	80,648	....	....	....
																					Averages.						
Means	29.324	29.291	29.302	29.306	29.880	*2	28.580	†29	......	44.1	51.2	46.6	47.3	92.5	‡22	−5.0	§22	....	55.7	39.4	2,068.1	2,484.9	2,167.7	......	....	....	....

* February. † October. ‡ August. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	9	5	9	12	18	18	14	7	1	1.55	0.49	20	7.9	7.5	5.6	7.0	15.9	18.3	16.6	16.9	86.2	75.8	81.8	81.3	3	11	17	18	16	30	0	
Feb	2	6	5	12	7	15	28	9	0	6.77	3.62	3	7.7	7.2	6.3	7.1	20.1	21.8	23.0	21.6	83.8	71.5	82.1	79.1	4	8	16	16	18	26	0	
Mar	14	14	8	11	12	10	11	13	0	1.34	0.34	6	6.9	6.3	5.7	6.3	19.2	21.0	20.5	20.2	79.0	66.7	72.7	72.8	3	15	13	10	18	31	0	
Apr	10	21	4	17	13	5	9	8	3	2.10	0.77	5, 6	6.0	5.8	5.0	5.6	31.2	31.4	32.3	31.6	69.4	57.4	67.2	64.7	7	14	9	8	2	8	0	
May	18	9	6	13	17	5	18	6	1	6.50	1.40	21	5.6	5.9	5.4	5.6	39.8	42.1	42.7	41.5	67.5	59.0	68.0	64.8	8	12	11	17	0	0	0	
June	12	7	6	17	10	10	15	4	0	3.77	0.93	18	5.7	4.8	3.3	4.6	55.5	56.0	56.9	56.1	74.4	58.6	74.2	69.1	9	15	6	16	0	0	0	
July	8	10	6	7	23	20	10	9	0	3.75	0.84	7, 8	4.6	5.7	4.1	4.8	58.7	57.9	59.5	58.7	74.5	55.5	72.5	67.5	6	22	8	15	0	0	2	
Aug	14	12	11	16	18	4	14	3	1	2.72	1.78	28	4.4	3.8	2.5	3.6	53.5	55.0	54.0	54.2	73.4	55.6	67.4	65.5	13	15	8	7	0	0	1	
Sept	13	18	11	24	9	4	6	3	2	4.03	1.23	29, 30	6.6	6.2	4.0	5.6	46.6	48.5	48.4	47.8	73.8	56.4	71.1	67.1	7	13	10	14	0	0	0	First frost, Sept. 10.
Oct	13	17	15	16	11	7	10	4	0	3.56	1.41	2	7.1	7.2	6.4	6.9	41.0	40.5	41.1	40.9	74.9	59.2	70.4	68.2	5	11	15	11	0	0	0	
Nov	1	5	2	12	31	9	17	13	0	2.36	1.12	21, 22	7.0	7.0	4.7	6.2	31.2	31.0	31.1	31.1	70.2	57.7	67.5	65.1	7	11	12	12	2	9	0	First snow, Nov. 1.
Dec	5	1	2	13	21	21	14	16	0	2.68	0.48	23, 24	7.2	6.0	5.8	6.3	23.9	24.8	25.6	24.8	77.5	69.5	78.8	75.3	4	14	13	18	8	27	0	
Sums	119	125	85	170	199	128	166	95	8	41.13	....	......	76.7	73.4	58.8	69.6	436.6	448.3	451.7	445.4	904.6	742.9	873.7	840.5	76	161	128	162	54	126	3	
	Percentages.																								Percentages.							
Means	10.9	11.4	7.8	15.5	18.2	11.7	15.2	8.7	0.7	.....	....	......	6.4	6.1	4.9	5.8	36.4	37.4	37.6	37.1	75.4	61.9	72.8	70.0	20.8	44.1	35.1	44.4	14.8	34.5	0.8	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.41 a. m., 2.41 p. m., and 10.41 p. m., local time.
Correction for instrumental error of barometer used: From 6.41 a. m., January 1, to 10.41 p. m: December 31, inclusive, —.004 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.780; February, 0.790; March, 0.780; April, 0.760; May, 0.730; June, 0.730; July, 0.720; August, 0.720; September, 0.720; October, 0.740; November, 0.770; December, 0.790.

WILLIAM LINE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

COLUMBUS, OHIO.

[Latitude, 39° 58′ N.; longitude, 83° W. Magnetic variation, 1° 15′ E. Elevation of barometer above sea-level, 805 feet. Elevation of exposed thermometer above ground, 52 feet. Elevation of rain-gauge above ground, 70 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29. 278	29. 238	29. 264	29. 260	29. 716	23	28. 643	10	1. 073	23. 5	29. 9	26. 5	26. 6	55. 0	30	−3. 0	22	58. 0	34. 5	19. 7	1, 964	2, 290	2, 211	6, 465	33	W.	30
Feb	29. 384	29. 353	29. 362	29. 366	29. 787	18	28. 906	6	. 881	30. 4	37. 1	34. 3	33. 9	72. 0	16	10. 0	1	62. 0	42. 0	26. 6	1, 874	2, 355	2, 189	6, 418	24	W., NW.	4 7 17 25 26
Mar.....	29. 155	29. 118	29. 158	29. 144	29. 598	7	28. 608	10	. 990	30. 8	39. 9	34. 3	35. 0	68. 0	18	14. 0	20	54. 0	43. 4	27. 2	1, 982	2, 815	2, 613	7, 410	36	W.	10
Apr.....	29. 128	29. 095	29. 118	29. 114	29. 436	3	28. 729	23	. 707	44. 5	56. 5	50. 2	50. 4	86. 0	14	26. 0	2	60. 0	60. 6	41. 3	1, 613	2, 489	2, 033	6, 135	30	SW.	15
May	29. 121	29. 081	29. 101	29. 101	29. 438	6	28. 629	21	. 809	53. 7	66. 4	58. 4	59. 5	85. 0	4, 8	34. 0	21	51. 0	70. 3	50. 3	1, 606	2, 383	2, 223	6, 212	40	W.	14
June	29. 128	29. 094	29. 113	29. 112	29. 486	1	28. 764	10	. 722	64. 8	76. 7	68. 0	69. 8	89. 0	5	48. 0	1	41. 0	79. 7	61. 7	1, 021	2, 031	1, 781	4, 833	29	SW.	9
July	29. 204	29. 172	29. 187	29. 188	29. 425	18	28. 892	12	. 533	67. 3	81. 2	71. 8	73. 4	94. 0	23	54. 0	10	40. 0	83. 6	64. 6	908	2, 168	1, 800	4, 876	28	SW.	4
Aug.....	29. 245	29. 199	29. 224	29. 223	29. 411	7	28. 988	2	. 423	62. 1	78. 4	67. 9	69. 5	93. 0	22	50. 0	30	43. 0	80. 1	60. 2	808	1, 662	1, 539	4, 009	37	W.	22
Sept	29. 240	29. 183	29. 217	29. 213	29. 558	9	28. 824	24	. 734	55. 9	72. 0	61. 3	63. 1	88. 0	16	39. 0	9	49. 0	74. 0	54. 0	945	1, 881	1, 654	4, 480	40	SW.	24
Oct......	29. 256	29. 232	29. 271	29. 253	29. 674	16	28. 563	29	1. 111	50. 6	60. 0	53. 6	54. 7	84. 0	9	35. 0	16	49. 0	62. 8	48. 3	1, 442	2, 143	1, 673	5, 258	32	SW.	31
Nov.....	29. 301	29. 257	29. 288	29. 282	29. 796	16	28. 774	9	1. 022	39. 4	49. 5	43. 4	44. 1	71. 5	9	12. 0	16	59. 5	52. 5	36. 9	1, 741	2, 276	1, 967	5, 984	36	SW.	9
Dec	29. 242	29. 212	29. 247	29. 234	29. 626	22	28. 696	16	. 930	31. 3	37. 9	34. 2	34. 5	59. 0	7	12. 4	22	46. 6	41. 9	27. 6	1, 544	2, 104	1, 995	5, 643	32	W.	27
Sums..	350. 682	350. 234	350. 550	350. 490	......	....	......	....	......	554. 3	685. 5	603. 9	614. 5	....	....	......	....	....	725. 4	518. 4	17, 448	26, 597	23, 678	67, 723	....	....	....
																					Averages.						
Means.	29. 224	29. 186	29. 212	29. 207	29. 796	*16	28. 563	†29	......	46. 2	57. 1	50. 8	51. 2	94. 0	‡28	−3. 0	§22	....	60. 4	43. 2	1, 454. 0	2, 216. 4	1, 973. 2	......	......	....	....

* November. † October. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 8 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	8 p. m.	11 p. m.	Mean.	7 a. m.	8 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	9	11	10	9	13	18	20	8	0	3.20	0.80	20	8.7	7.6	7.6	8.0	17.1	20.3	18.8	18.7	76.2	67.9	72.9	72.8	2	9	20	17	10	26	0	
Feb	2	8	9	7	12	14	22	15	0	6.18	1.42	3, 4	7.2	7.5	6.6	7.1	24.8	25.0	27.6	25.8	79.2	61.8	76.0	72.8	2	12	14	15	2	23	0	
Mar	6	12	6	4	14	20	13	18	0	3.20	1.50	29, 30	6.1	6.7	5.9	6.2	24.2	23.5	24.8	24.2	76.2	53.5	68.0	65.9	5	14	12	15	5	21	0	
Apr	6	18	9	10	11	14	11	11	0	2.85	0.72	22	4.9	6.8	4.8	5.5	35.7	36.6	38.1	36.8	71.9	50.9	64.9	62.6	10	8	12	12	0	4	0	Last frost April 25.
May	8	2	7	7	21	18	26	9	0	6.38	1.78	20, 21	6.0	6.7	4.2	5.6	44.0	45.3	46.2	45.2	70.6	50.5	65.5	62.2	7	13	11	16	0	0	0	
June.....	8	3	4	9	32	24	6	4	0	4.25	1.11	10, 11	5.4	6.3	3.6	5.1	57.6	58.2	58.7	58.2	78.2	55.2	72.9	68.8	8	18	4	16	0	0	0	
July.....	9	1	0	5	34	18	12	14	0	3.75	1.22	24	4.1	5.6	2.6	4.1	60.0	58.5	61.8	60.1	77.5	47.5	71.1	65.4	13	14	4	13	0	0	5	
Aug	13	12	4	4	14	9	16	21	0	2.54	1.40	28	3.7	4.8	2.6	3.7	54.2	53.6	56.9	54.9	75.6	44.0	68.5	62.7	16	10	5	11	0	0	1	
Sept	13	13	5	7	21	12	7	12	0	2.43	0.95	29, 30	4.4	5.6	4.4	4.8	49.8	49.2	51.5	50.2	80.3	47.3	71.0	66.2	10	11	9	12	0	0	0	First frost September 9.
Oct	15	13	9	11	9	12	7	17	0	6.11	2.17	29	6.8	7.4	7.0	7.1	45.5	44.1	45.7	45.1	82.6	58.5	74.9	72.0	5	9	17	13	0	0	0	
Nov	5	0	4	15	28	11	17	10	0	3.87	1.48	21, 22	5.1	5.9	4.7	5.2	32.1	32.0	32.7	32.3	75.4	52.6	67.0	65.0	7	14	9	10	2	10	0	First killing frost November 3.
Dec......	6	4	5	8	28	15	17	10	0	4.12	1.63	23, 24	5.8	7.3	6.1	6.4	25.3	25.0	26.8	25.7	78.3	60.4	74.2	71.0	5	10	16	17	8	20	0	
Sums..	100	92	72	96	237	175	174	149	0	46.88	....	......	68.2	78.2	60.1	68.8	470.3	471.8	489.6	477.2	922.0	650.1	846.9	806.4	90	142	183	167	27	104	6	
	Percentages.																								Percentages.							
Means.	9.1	8.4	6.6	8.8	21.6	16.0	15.9	13.6	0	......	....	......	5.7	6.5	5.0	5.7	39.2	39.3	40.8	39.8	76.8	54.2	70.6	67.2	24.7	38.9	36.4	45.8	7.4	28.5	1.6	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.36 a. m., 2.36 p. m., and 10 36 p. m., local time.
Correction for instrumental error of barometer used: From 6.36 a. m., January 1, to 10.36 p. m., December 31, inclusive, —.005 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.900; February, 0.900; March, 0.890; April, 0.870; May, 0.840; June, 0.840; July, 0.830; August, 0.830; September, 0.840; October, 0.860; November, 0.890; December, 0.910.

D. CUTHBERTSON,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

CONCHO, FORT, TEX.

[Latitude, 31° 28′ N.; longitude, 100° 24′ W. Magnetic variation, 10° 45′ E. Elevation of barometer above sea-level, 1,900 (B) feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 2 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28.221	28.179	28.192	28.197	28.528	22	27.853	12	.675	30.0	53.3	38.8	40.7	76.3	26	3.8	20	72.5	57.6	28.0	1,393	2,241	1,982	5,616	35	SW.	12
Feb	28.276	28.255	28.276	28.269	28.743	17	27.679	15	1.064	37.2	50.8	43.7	43.9	79.4	2	6.0	4	73.4	56.0	34.9	1,589	1,963	2,295	5,797	38	N.	24
Mar	28.141	28.102	28.120	28.121	28.546	3	27.734	24	.812	46.4	65.2	54.6	55.4	88.3	28	28.8	19	59.5	70.5	45.0	1,744	2,356	2,357	6,457	40	NE.	15
Apr	27.023	27.994	27.999	28.005	28.557	15	27.480	20	1.077	52.5	76.6	61.6	63.6	91.0	12, 13	37.0	16	54.0	79.8	50.8	2,038	3,268	3,291	8,597	48	S.	21
May	28.060	28.041	28.033	28.045	28.267	5	27.792	16	.477	61.3	83.4	69.8	71.5	96.4	28	50.0	21	46.4	87.3	60.1	1,938	3,241	2,940	8,119	44	SE.	16
June	28.073	28.050	28.033	28.052	28.212	29	27.727	8	.485	71.3	91.9	78.4	80.5	112.0	23	61.0	10	41.0	95.8	70.1	1,827	2,742	2,633	7,202	28	S., S. E., E.	1, 8 11 7
July	28.163	28.137	28.127	28.142	28.355	18	27.941	13	.414	71.7	92.3	79.3	81.1	101.8	30	66.0	22	35.8	94.9	71.2	1,543	2,700	2,686	6,929	32	S.	2, 3
Aug	28.165	28.134	28.137	28.145	28.301	28	27.959	11	.342	70.9	94.4	80.4	81.9	103.4	22	61.0	28 29 30	42.4	98.0	70.5	1,083	1,722	2,161	4,966	32	S.	22
Sept.....	28.188	28.162	28.170	28.173	28.384	21	27.944	13	.440	62.7	82.4	70.4	71.8	96.6	1	46.8	23	49.8	86.0	62.1	1,083	2,029	1,819	4,931	25	NE., SE.	5, 14
Oct......	28.118	28.090	28.112	28.107	28.468	31	27.807	27	.661	59.8	73.2	64.3	65.8	93.4	2	37.5	25	55.9	76.1	57.8	1,926	2,370	2,276	‖6,572	40	SE.	12
Nov	28.232	28.199	28.222	28.218	28.684	12	27.820	9	.864	47.7	65.1	52.5	55.1	82.3	9	26.5	27	55.8	67.6	44.6	1,641	2,670	1,887	6,198	32	N.	26
Dec	28.247	28.206	28.255	28.236	28.742	15	27.853	17	.889	41.0	57.7	45.3	48.0	77.0	1	22.0	9, 31	55.0	59.9	37.7	1,491	2,369	2,234	6,094	42	SW.	6
Sums..	337.907	337.549	337.676	337.710	......	....	......	....	.....	652.5	886.3	739.1	759.3	.....	.....	.....	.....	....	929.5	632.8	19,246	29,671	28,561	77,478	....	....	....
																					Averages.						
Means.	28.159	28.129	28.140	28.143	28.743	*17	27.480	†20	.....	54.4	73.9	61.6	63.3	108.4	‡22	3.8	§20	....	77.5	52.7	1,603.8	2,472.6	2,380.1	......	....	....	....

* February. † April. ‡ August. § January. ‖ Thirty days. B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan......	16	4	0	2	12	20	6	3	30	.18	.08	2, 3	4.5	3.1	1.8	3.1	22.5	27.1	27.2	25.6	73.3	40.7	64.9	59.6	16	10	5	5	3	17	0	
Feb......	22	14	4	4	11	4	2	2	21	1.20	.69	23	6.5	6.7	6.1	6.4	30.9	34.2	35.0	33.4	78.2	57.1	72.6	69.3	5	10	13	9	2	10	0	
Mar......	12	14	3	10	19	11	7	3	14	8.99	1.36	15, 16	6.1	5.9	4.1	5.4	42.3	43.1	45.6	43.7	86.0	50.4	73.5	70.0	10	9	12	11	0	1	0	
Apr......	6	15	8	4	25	9	10	9	4	.12	.12	21	4.6	3.3	2.6	3.5	42.3	42.6	44.1	43.0	69.6	33.6	55.2	52.8	11	14	5	1	0	0	3	
May......	8	13	8	6	33	4	3	3	15	5.35	3.55	18, 19	6.3	4.1	2.6	4.3	55.5	57.5	57.7	56.9	82.1	42.7	66.7	63.8	11	13	7	9	0	0	11	
June......	1	13	4	24	36	0	4	0	8	1.52	1.30	1	5.3	3.8	2.9	4.0	65.0	63.0	63.4	63.8	81.5	40.1	61.9	61.2	12	12	6	4	0	0	24	
July......	1	9	2	10	51	4	1	1	14	3.74	2.31	7, 8	3.8	5.7	2.4	4.0	65.1	63.5	62.8	63.8	80.2	40.8	58.6	59.9	14	12	5	8	0	0	27	
Aug......	0	19	7	9	34	2	1	1	20	3.05	2.48	22, 23	2.8	5.2	2.8	3.6	63.5	59.6	60.0	61.0	78.3	33.0	51.8	54.4	12	16	3	4	0	0	28	
Sept......	3	18	4	12	20	9	4	4	16	3.98	2.53	19, 20	4.8	5.1	4.1	4.7	57.2	59.7	60.1	59.0	83.0	48.2	71.9	67.7	10	15	5	6	0	0	8	
Oct......	4	22	7	7	27	5	5	3	13	3.02	2.95	4	7.7	6.4	5.2	6.4	56.3	59.6	58.8	58.2	89.1	64.9	83.3	79.1	4	13	14	11	0	0	2	
Nov......	8	12	6	4	27	13	10	1	9	.29	.18	11, 12	5.8	5.2	3.6	4.9	41.9	42.9	44.0	42.9	80.9	47.6	73.9	67.5	10	13	7	5	0	3	0	
Dec......	10	14	6	0	19	11	14	8	11	1.20	1.04	12, 13	4.6	3.4	2.6	3.5	36.7	38.6	38.6	38.0	85.7	51.5	78.5	71.9	15	10	6	5	0	9	0	
Sums..	91	167	59	92	314	92	67	38	175	32.64	....	......	62.8	57.9	40.8	53.8	579.2	591.4	597.3	589.3	967.9	550.6	812.8	777.2	130	147	88	78	5	40	103	
	Percentages.																								Percentages.							
Means.	8.3	15.2	5.4	8.4	28.7	8.4	6.1	3.5	16.0	.....	....	......	5.2	4.8	3.4	4.5	48.3	49.3	49.8	49.1	80.7	45.9	67.7	64.8	35.6	40.3	24.1	21.4	1.4	10.9	28.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.27 a. m., 1.27 p. m., 9.27 p. m.

Correction for instrumental error of barometer used: From 5.27 a. m., January 1, to 9.27 p. m., December 31, inclusive, +.002 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.020; February, 2.020; March, 1.970; April, 1.940; May, 1.900; June, 1.870; July, 1.880; August, 1.860; September, 1.900; October, 1.950; November, 2.010; December, 2.020.

C. E. KING,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

CUSTER, FORT, MONT.

[Latitude, 45° 42′ N.; longitude, 107° 34′ W. Magnetic variation, 18° 30′ E. Elevation of barometer above sea-level, 3,040 (B) feet. Elevation of exposed thermometer above ground, 5 feet. Elevation of rain-gauge above ground, 22 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan																											
Feb																											
Mar																											
Apr																											
May																											
June																											
July	26.974	26.939	26.938	26.950	27.126	26	26.778	25	.348	59.6	80.5	68.8	69.6	97	24	43	27	54			399	334	509	[1]1,242	24	NE.	25
Aug	26.916	26.872	26.886	26.891	27.137	27	26.571	20	.566	60.5	81.9	69.8	70.7	101	15	36	22	65	88.7	53.8	1,397	1,504	2,130	5,031	38	NE.	18
Sept	26.984	26.941	26.934	26.953	27.495	20	26.607	12	.888	44.9	71.6	59.3	58.6	95	6	31	21 22 29	64	80.9	43.6	1,199	1,063	1,628	3,890	40	SE.	5
Oct	26.819	26.809	26.830	26.819	27.225	10	26.301	27	.924	32.7	51.0	43.0	42.2	78	6	20	24	58	56.9	31.8	1,228	1,503	1,957	4,688	46	NW.	29
Nov	26.823	26.782	26.797	26.801	27.440	13	26.337	22	1.103	22.4	40.9	30.4	31.2	68	1	−19	26	87	46.5	18.5	1,455	1,402	1,648	4,505	40	NE.	10
Dec	26.852	26.862	26.872	26.862	27.422	31	26.203	25	1.219	20.7	33.9	23.5	26.0	58	12	−18	30	71	37.8	14.7	1,488	1,790	1,535	4,813	72	NW., W.	17, 25
Sums																											
																					Averages.						
Means																											

* B.—Elevation determined by barometer.

[1] Seven days.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time; Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan																																
Feb																																
Mar																																
Apr																																
May																																
June																																
July	5	5	3	10	0	2	2	5	1	.22	.16	22	3.6	3.6	3.5	3.6	45.6	49.3	49.5	48.1	60.7	34.5	51.1	48.8	4	5	2	3	0	0	6	Station opened July 21.
Aug	11	12	12	22	15	6	6	9	0	1.01	.66	11	2.5	3.7	2.7	3.0	42.5	46.4	48.2	45.7	56.2	31.2	48.7	44.7	17	11	3	4	0	0	15	
Sept	19	23	21	7	6	3	5	6	0	.46	.41	12, 13	1.4	2.2	1.3	1.6	35.1	44.4	44.9	41.5	68.9	39.4	60.4	56.2	23	7	0	3	0	4	5	
Oct	12	13	7	14	4	3	16	22	2	.97	.28	9	6.9	7.5	5.9	6.8	26.5	35.5	35.8	32.6	77.8	58.0	76.5	70.8	4	11	16	13	0	15	0	
Nov	21	13	7	14	5	2	14	14	0	1.10	.39	19	5.9	7.1	3.9	5.6	17.4	23.9	22.4	[1]21.2	76.8	53.0	72.8	[1]67.5	4	19	7	8	4	24	0	[1]One 7 a. m. observation missed.
Dec	16	7	6	17	7	7	15	13	5	1.87	.57	25, 26	5.7	7.2	4.4	5.8	15.0	22.5	16.1	17.9	78.8	64.4	74.2	72.5	8	13	10	11	8	29	0	
Sums																																
	Percentages.																								Percentages.							
Means																																

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 4.58 a. m., 12.58 p. m., and 8.58 p. m., local time.

Correction for instrumental error of barometer used: From 4.58 a. m., July 21, to 8.58 p. m., December 31, inclusive, +.017 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: July, 3.020; August, 3.060; September, 3.120; October, 3.240; November, 3.320; December, 3.400.

THOS. GIBSON,
Corporal, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

DAVENPORT, IOWA.

[Latitude, 41° 30′ N.; longitude, 90° 38′ W. Magnetic variation, 7° 30′ E. Elevation of barometer above sea-level, 615 feet. Elevation of exposed thermometer above ground, 46 feet. Elevation of rain-gauge above ground, 77 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	1 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.469	29.457	29.477	29.468	29.956	23	28.826	30	1,130	11.0	19.1	16.4	15.5	45.7	13	−23.0	22	68.7	24.8	2.7	1,918	2,554	2,518	6,990	32	S., W.	12, 30
Feb	29.590	29.579	29.593	29.587	30.088	17	28.873	16	1.215	18.7	28.9	25.6	24.4	53.7	16	−14.0	5	67.7	33.1	10.5	1,717	2,069	2,020	5,806	32	W.	16
Mar	29.396	29.375	29.398	29.390	29.938	3	28.810	18	1.128	29.5	40.0	34.6	34.7	62.7	14	3.0	7	59.7	42.9	22.5	2,036	2,700	2,651	7,387	33	NE.	18
Apr	29.261	29.227	29.248	29.245	29.637	2	28.759	10	.878	44.8	59.0	51.3	51.7	80.2	13	26.0	1	54.2	62.0	38.6	2,347	2,874	3,040	8,261	42	S.	14
May	29.266	29.249	29.262	29.259	29.630	11	28.754	14	.876	52.5	62.5	55.9	57.0	81.2	18	33.0	21	48.2	65.5	45.3	2,141	2,859	2,708	7,708	36	SW.	18
June	29.268	29.253	29.252	29.258	29.567	1	28.977	11	.590	63.4	78.6	68.0	68.3	92.0	29	49.0	26	43.0	76.1	57.7	1,469	2,409	2,106	5,984	36	SW.	15
July	29.343	29.326	29.320	29.330	29.696	18	29.008	12	.688	68.5	80.3	72.4	73.7	92.0	2	52.0	8	40.0	82.0	62.8	1,690	2,297	2,276	6,263	30	E.	20
Aug.....	29.420	29.400	29.405	29.408	29.662	6	29.100	21	.562	63.6	76.6	69.1	69.8	88.2	19	49.0	23	39.2	78.1	58.3	1,283	1,901	1,895	5,169	24	SW., S., SW.	18 19 22
Sept.....	20.414	29.391	29.415	29.407	29.777	9	29.015	24	.762	53.7	69.7	59.3	60.9	85.7	1	38.0	9	47.7	71.2	48.2	1,448	2,047	2,030	5,525	30	NW.	20
Oct......	29.435	29.416	29.429	29.427	29.915	15	28.784	29	1.131	46.0	55.2	49.7	50.3	82.2	8	31.0	25	51.2	56.9	40.5	1,996	2,204	2,131	6,331	32	SE.	18
Nov	29.433	29.389	29.392	29.405	29.989	12	28.823	8	1.166	36.5	46.9	41.6	41.7	62.2	5	6.0	15	56.2	50.5	29.8	2,169	2,712	2,547	7,428	38	W.	25
Dec	29.404	29.388	29.424	29.405	29.783	19	28.792	17	.991	26.7	35.9	30.8	31.1	59.0	6	− 2.0	19	61.0	40.2	19.1	1,948	2,211	2,057	6,216	27	NW.	17
Sums..	352.699	352.450	352.615	352.589	......	....	......	....	......	514.9	647.7	574.7	579.1	....	.....	......	....	....	683.8	435.0	22,162	28,927	27,979	79,068	...	....	.....
																					Averages.						
Means.	29.392	29.371	29.385	29.383	30.088	*17	28.754	†14	......	42.9	54.0	47.9	48.3	92.0	‡29 §2	−23.0	‖22		56.9	36.2	1,846.8	2,410.6	2,331.6	......	...	....	.....

* February. † May. ‡ June. § July. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	5	8	10	6	2	10	24	28	0	1.16	0.34	4	5.4	6.3	4.8	5.5	—0.2	3.9	4.4	2.7	60.2	51.5	58.7	56.8	9	11	11	16	25	31	0	
Feb	3	9	12	6	1	14	18	20	1	4.42	2.90	16	5.2	5.7	5.5	5.5	9.3	11.5	14.2	11.7	66.4	48.6	61.9	59.0	9	6	13	9	15	26	0	
Mar	7	15	7	8	1	11	18	26	0	0.73	0.35	25	4.8	6.1	4.3	5.1	19.6	21.1	22.3	21 0	65.8	47.4	60.3	57.8	11	11	9	6	3	29	0	
Apr	6	16	15	6	11	13	11	12	0	3.33	1.48	4, 5	5.9	6.6	4.9	5.8	35.6	37.5	37.7	36.9	70.5	48.0	60.8	59.8	7	12	11	10	0	7	0	Last snow of season
May	6	12	10	8	12	11	10	24	0	5.46	0.99	9, 10	6.9	7.3	5.8	6.7	45.2	47.0	47.1	46.4	76.6	59.5	73.1	69.7	4	12	15	16	0	0	0	April 6th.
June	8	11	4	10	11	15	13	17	1	4.38	1.39	12	6.2	7.4	5.1	6.2	57.8	59.0	60.6	59.1	82.2	61.9	77.6	73.9	2	17	11	12	0	0	1	Last frost of season
July	7	7	6	5	7	38	7	15	1	3.66	1.70	20	4.7	6.2	4.0	5.0	61.6	63.2	63.7	62.8	79.1	57.6	74.6	70.4	10	14	7	11	0	0	2	May 22d.
Aug	6	14	15	8	3	25	4	18	0	1.02	0.81	8, 9	5.0	5.7	3.2	4.6	57.1	57.9	60.1	58.4	79.6	54.0	73.6	69.1	9	15	7	4	0	0	0	
Sept	11	17	18	9	3	16	6	10	0	0.73	0.34	15, 16	3.6	4.3	3.4	3.8	47.9	48.5	49.7	48.7	81.1	49.0	71.3	67.1	15	12	3	9	0	0	0	
Oct	7	25	17	11	7	6	8	12	0	5.13	1.50	13	6.9	7.1	5.8	6.6	40.3	41.0	41.9	41.1	81.1	61.1	75.2	72.5	3	16	12	14	0	1	0	
Nov	2	4	3	5	11	22	16	26	1	3.58	2.03	5	4.8	5.1	3.7	4.5	29.1	30.8	31.2	30.4	74.5	55.0	66.9	65.5	12	11	7	8	2	15	0	First frost of season
Dec	8	6	9	4	6	20	14	25	1	0.99	0.39	16	5.8	5.4	4.2	5.1	18.3	21.6	20.5	20.1	70.0	56.7	65.3	64.0	11	10	10	8	7	25	0	September 9th.
																																First snow of season
Sums	76	144	126	86	75	201	149	233	5	34.59	....	......	65.2	73.2	54.7	64.4	421.6	443.0	453.4	439.3	887.1	650.3	819.3	785.6	102	147	116	123	52	134	8	October 24th.
	Percentages.																								Percentages.							
Means	6.9	13.1	11.5	7.9	6.8	18.4	13.6	21.3	0.5	......	....	......	5.4	6.1	4.6	5.4	35.1	36.9	37.8	36.6	73.9	54.2	68.3	65.5	27.9	40.8	31.8	33.7	14.2	36.7	0.8	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.06 a. m., 2.06 p. m., and 10.06 p. m., local time.
Correction for instrumental error of barometer used: From 6.06 a. m., January 1, to 10.06 p. m., December 31, inclusive, —.005 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.710; February, 0.700; March, 0.690; April, 0.670; May, 0.640; June, 0.640; July, 0.630; August, 0.630; September, 0.650; October, 0.660; November, 0.690; December, 0.710.

ROBT. R. MARTIN,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

DAVIS, FORT, TEX.

[Latitude, 30° 36′ N.; longitude, 103° 56′ W. Magnetic variation, 11° E. Elevation of barometer above sea-level, 4,940 (B) feet. Elevation of exposed thermometer above ground, 4 feet. Elevation of rain-gauge above ground, 20 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°		*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	25. 223	25. 177	25. 185	25. 195	25. 462	8	24. 980	18	. 482	30. 1	54. 9	41. 1	42. 0	69. 0	31	17. 0	1	52. 0	57. 0	28. 2	611	1, 459	1, 486	3, 556	24	N.	8
Feb	25. 245	25. 207	25. 225	25. 226	25. 618	27	24. 790	15	. 828	35. 8	57. 4	44. 5	45. 9	74. 0	1	9. 0	5	65. 0	60. 1	32. 6	1, 039	1, 524	1, 760	4, 323	28	N.	24
Mar	25. 179	25. 143	25. 155	25. 159	25. 447	3	24. 832	23	. 615	44. 9	63. 7	52. 2	53. 6	83. 0	27	28. 0	8, 19	55. 0	65. 4	41. 4	1, 046	1, 840	1, 744	4, 630	32	N.	15
Apr	25. 124	25. 082	25. 092	25. 099	25. 554	15	24. 708	20	. 846	48. 1	69. 3	57. 3	58. 2	92. 0	17	33. 0	6	59. 0	74. 2	45. 0	1, 110	2, 102	2, 068	5, 280	32	W.	29
May	25. 181	25. 145	25. 138	25. 155	25. 416	26	24. 900	16	. 516	58. 2	80. 4	66. 4	68. 3	96. 0	28	45. 0	1	51. 0	84. 8	54. 8	947	1, 538	1, 725	4, 210	20	S., N., E.	12 30 31
June	25. 199	25. 172	25. 164	25. 178	25. 340	30	24. 960	8	. 380	66. 2	87. 1	74. 2	75. 8	102. 0	21	57. 0	8 9 10 13	45. 0	94. 0	62. 8	792	1, 429	1, 657	3, 878	32	N.	6, 27
July	25. 273	25. 228	25. 227	25. 243	25. 452	18	25. 101	18	. 351	65. 6	83. 8	71. 9	73. 8	97. 0	20	58. 0	1 8 23 25	39. 0	88. 9	62. 8	635	1, 165	1, 374	3, 174	16	E.	29
Aug	25. 301	25. 261	25. 269	25. 277	25. 443	28	25. 141	11	. 302	64. 0	82. 8	72. 0	72. 9	97. 0	1	53. 0	30	44. 0	89. 9	60. 7	519	966	1, 169	2, 654	16	SW.	4
Sept.....	25. 287	25. 253	25. 259	25. 266	25. 479	21	25. 039	13	. 440	57. 6	77. 1	66. 3	67. 0	94. 0	1	37. 0	22	57. 0	81. 4	54. 4	582	1, 193	1, 438	3, 208	20	N.	20
Oct......	25. 204	25. 163	25. 182	25. 183	25. 500	31	24. 907	27	. 593	53. 2	73. 9	60. 9	62. 7	87. 0	1, 2	37. 0	30	50. 0	76. 5	50. 6	541	1, 391	1, 499	3, 431	28	S.	16
Nov.....	25. 287	25. 220	25. 246	25. 251	25. 574	12	24. 941	9	. 633	41. 1	63. 1	50. 7	51. 6	81. 6	4	25. 1	27	56. 5	65. 8	38. 9	860	1, 634	1, 675	4, 169	20	N.	10, 26
Dec	25. 291	25. 227	25. 243	25. 254	25. 632	15	25. 017	17	. 615	36. 1	58. 6	45. 4	46. 7	75. 0	21	12. 0	9	63. 0	59. 2	34. 6	1, 288	1, 989	2, 148	5, 425	24	N.	8
Sums..	302. 794	302. 278	302. 885	302. 486	......	....	......	....	......	600. 9	852. 1	702. 9	718. 5	......	....	....	....	......	896. 7	565. 8	9, 970	18, 230	19, 738	47, 938	....	....	....
																					Averages.						
Means.	25. 233	25. 190	25. 199	25. 207	25. 632	*15	24. 708	†20	......	50. 1	71. 0	58. 6	59. 9	102. 0	‡21	9. 0	§5	......	74. 7	47. 2	830. 8	1, 519. 2	1, 644. 8	......	....	....	....

B.—Elevation determined by barometer. † December. ‡ April. ‡ June. § February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	5	4	2	18	8	19	5	3	29	0.02	0.02	8	1.8	2.5	1.4	1.9	23.1	17.4	17.6	19.4	73.6	26.4	40.8	46.9	21	8	2	1	0	19	0	
Feb	12	12	11	5	4	14	4	2	20	0.02	0.01	23, 26	4.5	6.3	3.7	4.8	26.4	24.8	25.4	25.5	68.5	33.2	50.6	50.8	9	12	7	2	0	12	0	
Mar	14	5	2	1	14	26	8	5	18	0.52	0.45	7	4.4	5.4	3.9	4.6	34.4	31.6	33.5	33.2	69.7	37.8	54.9	54.1	12	11	8	4	0	4	0	
Apr	12	6	9	9	3	21	12	4	14	0.90	0.67	29	2.6	4.2	1.7	2.8	32.5	22.7	29.8	28.3	54.7	20.8	38.8	38.1	18	8	4	3	0	0	1	
May	15	5	9	4	13	19	3	3	22	1.00	0.52	12	2.4	3.3	2.2	2.6	43.5	30.5	38.5	37.5	59.8	19.2	41.0	40.0	18	9	4	2	0	0	6	
June	13	7	12	9	4	24	0	2	19	1.71	0.88	27	1.1	4.8	2.0	2.6	51.2	42.7	48.7	47.5	59.6	24.4	43.4	42.5	17	13	0	7	0	0	25	
July	6	4	26	7	7	16	1	2	24	3.62	1.14	7, 8	1.6	5.4	2.2	3.1	55.3	54.0	55.7	55.0	70.3	40.3	58.8	56.5	19	11	1	10	0	0	13	
Aug	13	2	20	13	4	9	0	1	31	3.07	0.98	11	1.1	4.1	2.2	2.5	54.3	48.0	53.7	52.0	70.9	33.7	54.1	52.9	21	9	1	10	0	0	14	
Sept	17	13	19	15	0	4	1	0	21	1.49	0.82	5, 6	3.6	4.7	3.3	3.9	49.6	46.9	50.3	48.9	75.2	37.5	59.0	57.2	17	6	7	7	0	0	1	
Oct	6	11	1	33	12	10	0	2	18	0.42	0.41	2, 3	3.4	4.7	2.2	3.4	44.9	41.2	45.8	44.0	75.2	33.7	61.3	56.7	14	12	5	3	0	0	0	
Nov	15	6	3	29	7	8	1	2	19	0.64	0.45	10, 11	3.6	4.2	2.6	3.5	33.1	33.7	33.7	33.5	75.0	39.0	57.1	57.0	16	11	3	3	0	5	0	
Dec	21	5	1	8	17	27	1	3	10	0.81	0.66	12	2.8	3.6	2.3	2.9	27.9	28.3	29.9	28.7	73.2	36.2	57.4	55.6	19	8	4	3	0	10	0	
Sums	149	80	115	151	93	197	36	29	245	14.22	....	......	32.9	53.2	29.7	38.6	476.2	421.8	462.6	453.5	825.7	382.2	617.2	608.3	201	118	46	55	0	50	60	
	Percentages.																								Percentages.							
Means	13.6	7.3	10.5	13.8	8.5	18.0	3.3	2.6	22.4	.....	....	......	2.7	4.4	2.5	3.2	39.7	35.2	38.6	37.8	68.8	31.8	51.4	50.7	55.1	32.3	12.6	15.1	0	13.7	16.4	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.13 a. m., 1.13 p. m., and 9.13 p. m., local time.

Corrections for instrumental errors of barometer used: From 5.13 a. m., January 1, to 9.13 p. m., February 28, inclusive, .000 inch; from 5.13 a. m., March 1, to 9.13 p. m., December 31, inclusive, +.035 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 4.980; February, 4.960; March, 4.880; April, 4.790; May, 4.720; June, 4.610; July, 4.640; August, 4.650; September, 4.700; October, 4.850; November, 4.900; December, 4.940.

JEROME WILLIAMS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

DAYTON, WASH. T.

[Latitude, 46° 19′ N.; longitude, 117° 56′ W. Magnetic variation, 21° 30′ E. Elevation of barometer above sea-level, 1,667 (B) feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly means.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°			*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28.394	28.380	28.360	28.378	28.901	19	27.943	25	.958	22.8	30.9	25.8	26.5	52.5	10	—23.5	19	76.0	34.8	19.2	1,380	1,290	1,547	4,217	27	S.	5
Feb	28.473	28.502	28.491	28.489	29.005	4	27.629	13	1.376	10.3	26.6	16.4	17.8	54.0	28	—24.0	4	78.0	30.6	7.9	815	832	1,070	2,717	29	S.	13
Mar	28.286	28.296	28.267	28.283	28.699	2	27.731	28	.968	36.8	54.1	45.9	45.6	72.5	22	30.0	3	42.5	57.8	36.1	1,018	1,361	1,391	3,770	19	SW.	20 23 24
Apr	28.180	28.195	28.170	28.182	28.474	17	27.772	19	.702	38.5	53.3	46.4	46.1	73.5	29	31.0	10	42.5	57.7	36.9	1,620	2,058	1,965	5,648	26	SW.	7
May	28.242	28.235	28.199	28.225	28.654	19	27.762	12	.892	48.2	64.8	56.3	56.4	81.5	20	34.0	3	47.5	68.7	45.0	1,339	1,718	1,517	4,574	28	SW.	13
June	28.277	28.264	28.217	28.253	28.614	5	27.941	10	.673	53.1	76.3	65.5	65.0	95.0	28	35.5	5	59.5	80.4	49.2	1,177	1,873	1,596	4,646	24	SW.	4
July	28.303	28.300	28.242	28.282	28.457	23	28.097	12	.360	56.1	82.6	71.1	69.9	98.0	9	42.0	16	56.0	87.3	53.6	1,363	1,677	1,497	4,537	20	SW.	15
Aug	28.290	28.286	28.254	28.277	28.523	19	28.059	3	.464	55.6	81.2	67.8	68.2	99.5	8	36.0	19	63.5	85.1	53.2	1,091	1,389	1,291	3,771	22	SW.	16
Sept	28.316	28.314	28.281	28.304	28.632	20	28.036	30	.596	49.5	73.7	56.5	59.9	91.0	5	30.0	20	61.0	77.5	45.2	906	937	956	2,799	16	NE.	19
Oct	28.265	28.264	28.255	28.261	28.604	30	27.695	27	.909	39.3	54.5	43.8	45.9	66.0	1	22.0	7	44.0	57.8	34.7	1,338	1,403	1,465	4,206	22	S.	28
Nov	28.296	28.306	28.305	28.302	28.708	11	27.716	24	.992	38.5	49.4	41.2	43.0	66.0	12	21.3	3	44.7	51.6	33.8	2,017	1,905	1,867	5,789	28	SW.	26
Dec	28.380	28.383	28.389	28.384	28.969	31	27.528	25	1.441	30.1	37.0	31.3	32.8	56.6	27	— 7.5	31	63.1	40.2	26.0	1,220	1,110	1,378	3,708	33	SW.	26
Sums ..	339.702	339.725	339.430	339.620	......	...	......	...	......	478.8	684.4	568.0	577.1	....	....	......	....	....	729.5	440.8	15,284	17,553	17,540	50,377	...	....	....
																					Averages.						
Means .	28.308	28.310	28.286	28.301	29.005	†4	27.528	‡25	......	39.9	57.0	47.3	48.1	99.5	§8	—24.0	†4	....	60.8	36.7	1,278.7	1,462.8	1,461.7	......	...	....	....

B.—Elevation determined by barometer. † February. ‡ December. § August.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 3 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 a. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	9	15	0	1	20	37	6	3	2	5.48	1.25	6, 7	7.7	8.4	8.0	8.0	18.5	28.5	21.0	21.0	83.7	75.4	82.5	80.5	2	7	22	25	11	25	0	
Feb	15	5	7	4	6	31	4	6	6	1.17	0.42	18, 19	3.0	4.2	3.8	3.6	5.0	17.5	10.6	11.0	78.5	69.0	77.6	75.0	12	12	4	9	18	27	0	
Mar	4	17	3	2	7	52	4	1	3	2.44	1.07	26, 27	4.3	4.7	3.4	4.2	32.0	38.6	38.0	36.2	83.4	59.3	75.6	72.8	15	9	7	8	0	4	0	
Apr	2	10	3	3	17	50	3	1	1	1.64	0.63	10	6.1	7.8	5.0	6.3	31.8	35.2	35.6	34.2	76.7	52.9	67.4	65.7	3	16	11	14	0	4	0	
May	3	17	5	6	15	40	3	3	1	2.90	1.16	12, 13	5.5	5.0	4.5	5.0	38.8	41.8	44.0	41.5	70.8	45.5	64.4	60.2	9	16	6	11	0	0	0	
June	1	12	0	2	5	61	2	2	5	0.08	0.05	3, 4	2.6	3.3	2.9	3.0	41.6	44.8	46.5	44.3	66.5	34.0	50.3	50.3	15	14	1	3	0	0	3	
July	6	15	0	0	19	42	2	7	2	0.00	0.00	......	1.9	1.2	1.2	1.4	42.2	44.5	44.2	43.6	60.0	27.6	38.9	42.2	24	7	0	0	0	0	10	
Aug	9	5	12	1	14	43	2	2	5	0.30	0.30	4	1.6	0.8	1.6	1.4	43.6	48.3	46.3	46.1	64.5	33.6	46.8	48.3	26	5	0	1	0	0	7	
Sept	14	18	8	0	3	29	4	7	7	0.09	0.07	18	3.1	2.6	2.6	2.8	37.1	42.8	40.1	40.0	62.8	35.0	55.4	51.1	14	14	2	2	0	2	1	
Oct	2	18	8	0	15	37	3	3	7	1.44	0.88	27	4.8	7.0	5.3	5.7	34.0	37.4	36.4	35.9	81.6	55.5	76.2	71.1	9	10	12	15	0	13	0	
Nov	6	11	2	2	19	46	1	0	3	3.11	0.92	26, 27	6.1	6.7	7.3	6.7	33.1	35.4	33.8	34.1	82.3	61.1	76.7	73.4	7	7	16	13	0	16	0	
Dec	11	15	3	2	15	29	3	7	8	2.99	0.78	25	4.3	6.0	4.8	5.1	26.5	29.8	27.3	27.9	87.3	76.6	86.5	83.5	10	11	10	14	5	23	0	
Sums	82	158	51	23	155	497	37	42	50	21.44	......	......	51.0	57.7	50.4	53.2	384.2	439.6	423.8	415.8	898.1	625.5	798.3	774.1	146	128	91	115	29	114	21	
	Percentages.																								Percentages.							
Means	7.5	14.4	4.7	2.1	14.2	45.4	3.4	3.8	4.6	......	......	......	4.2	4.8	4.2	4.4	32.0	36.6	35.3	34.6	74.8	52.1	66.5	64.5	40.0	35.1	24.9	31.5	7.9	31.2	5.8	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.16 a. m., 12.16 p. m., and 8.16 p. m., local time.

Corrections for instrumental errors of barometer used: From 4.16 a. m., January 1, to 8.16 p. m., June 30, inclusive, —0.005 inch; from 4.16 a. m., July 1, to 8.16 p. m., December 31, inclusive, +0.013 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.81; February, 1.82; March, 1.82; April, 1.76; May, 1.76; June, 1.75; July, 1.72; August, 1.72; September, 1.75; October, 1.79; November, 1,79; December, 1.84.

D. MOORE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

DEADWOOD, DAK.

[Latitude, 44° 23′ N.; longitude, 103° 43′ W. Magnetic variation, 16° E. Elevation of barometer above sea-level, 4,600 (B) feet. Elevation of exposed thermometer above ground, 25 feet. Elevation of rain-gauge above ground, 47 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	25.207	25.220	25.240	25.222	25.499	7	24.519	11	.980	10.9	23.9	12.5	15.8	62.0	25	−30.0	20	92.0	30.6	3.5	801	1,074	1,120	2,995	20	SW.	11
Feb	25.381	25.355	25.385	25.374	25.766	26	24.859	14	.907	13.8	26.8	17.2	19.3	62.0	27	−32.3	3	94.3	31.3	8.0	515	520	614	1,649	18	S.	16
Mar	25.347	25.324	25.325	25.332	25.838	2	24.840	17	.998	26.6	39.7	31.1	32.5	70.0	17	7.0	18	63.0	48.0	24.1	393	677	795	1,865	24	NE.	6
Apr	25.224	25.224	25.244	25.231	25.822	24	24.681	21	1.141	32.8	41.9	38.2	37.6	59.0	8	17.0	2	42.0	46.4	31.3	482	826	973	2,281	14	SW.	8
May	25.302	25.304	25.308	25.305	25.634	20	24.720	17	.914	40.1	47.5	42.3	43.3	78.0	31	21.0	3	52.0	52.2	35.7	603	1,060	1,083	2,746	20	NE.	18
June	25.377	25.363	25.375	25.372	25.554	22	25.044	10	.510	52.4	65.6	56.0	58.0	90.0	30	38.0	2	52.0	70.0	49.5	580	972	1,067	2,619	18	NE.	20
July	25.440	25.429	25.442	25.437	25.648	27	25.084	15	.564	56.0	69.5	60.8	62.1	89.0	19, 25	42.0	27	47.0	73.1	53.5	566	1,133	1,050	2,749	24	S.	3
Aug	25.481	25.453	25.477	25.470	25.672	27	25.113	21	.559	55.6	71.9	60.4	62.6	87.0	16, 26, 28	42.0	22	45.0	75.4	54.3	607	972	954	2,533	24	S.	16
Sept	25.485	25.466	25.484	25.478	25.902	20	25.143	13	.759	47.0	62.3	52.3	53.9	84.0	11	31.0	25	53.0	63.8	45.5	603	1,111	1,188	2,902	20	N.	13
Oct.*	25.341	25.322	25.361	25.341	25.710	31	24.906	27	.804	36.5	45.1	38.8	40.1	71.0	7	22.2	13	48.8	47.4	33.9	621	956	936	2,513	24	SW.	4
Nov	25.323	25.273	25.310	25.302	25.746	12	24.915	24	.831	29.4	39.8	33.4	34.2	65.7	30	6.7	14	59.0	44.5	23.0	722	783	874	2,379	30	SE.	24
Dec	25.341	25.323	25.345	25.336	25.798	14	24.687	25	1.111	23.2	31.6	24.7	26.5	58.7	12	−8.0	31	66.7	35.8	18.5	826	1,088	897	2,811	20	W.	25
Sums	302.249	304.056	304.296	304.200	......	....	......	....	......	424.3	565.6	467.7	485.9	....	......	......	....	....	618.5	380.8	726.9	11,172	11,551	22,992	....	......	....
																					Averages.						
Means	25.354	25.338	25.358	25.350	25.902	†20	24.519	‡11	......	35.4	47.1	39.0	40.5	90.0	§30	−32.3	¶3	....	51.5	31.7	605.8	931.0	962.6	......	....	......	....

B.—Elevation determined by barometer. † One 7 a. m., one 11 p. m. observation missed. ‡ September. § January. ‖ June. ¶ February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	2	29	12	4	1	30	5	5	5	.74	.27	6, 7	5.3	5.4	4.8	5.2	7.9	17.5	8.4	11.3	88.2	77.9	85.4	83.8	8	14	9	13	13	31	0	
Feb	3	11	2	0	9	20	7	7	25	1.32	1.08	23, 24	2.9	4.1	1.8	2.9	9.3	20.0	12.6	14.0	82.8	76.8	80.6	80.1	14	11	3	7	11	27	0	
Mar	8	35	0	3	6	13	3	0	25	.84	.13	25	6.1	5.3	5.0	5.5	23.3	31.6	26.0	27.0	87.4	74.7	81.8	81.3	9	11	11	15	3	26	0	
Apr	0	34	1	1	1	24	1	1	27	5.69	2.23	21	5.1	6.3	6.0	5.8	28.8	35.8	34.1	32.9	85.7	80.6	86.2	84.2	6	15	9	19	2	15	0	
May	1	37	5	3	7	2	3	8	27	10.33	3.20	18	5.6	8.4	7.4	7.1	35.2	42.5	38.9	38.9	83.7	84.1	88.4	85.4	4	12	15	18	1	8	0	
June	2	38	6	9	13	1	1	3	17	5.26	3.34	23, 24	2.1	6.4	6.6	5.0	42.5	51.8	48.5	47.6	70.3	64.7	79.1	71.4	8	17	5	17	0	0	0	
July	6	9	3	2	18	5	5	22	23	1.82	1.04	22, 23	3.2	6.4	4.4	4.7	48.4	56.5	53.6	52.8	77.7	65.0	76.8	73.2	11	13	7	12	0	0	0	
Aug	5	3	10	6	24	2	0	24	19	1.37	.72	11	2.4	5.2	2.6	3.4	48.7	55.3	52.4	52.1	78.0	58.2	75.7	70.6	16	12	3	8	0	0	0	
Sept	11	20	2	4	9	4	2	20	18	.11	.10	13	3.4	3.7	2.7	3.3	40.9	48.5	43.4	44.3	79.7	61.7	72.9	71.4	14	13	3	2	0	1	0	
Oct[1]	8	14	7	5	5	4	19	6	28	.80	.18	9, 10	4.2	6.5	4.3	5.0	30.8	36.4	32.9	33.4	80.7	73.2	79.9	77.9	8	15	6	13	0	11	0	
Nov	5	2	9	8	1	10	17	9	29	.45	.18	13	1.5	4.7	2.8	3.0	21.5	27.1	24.7	24.4	73.0	62.6	72.4	69.3	17	11	2	7	1	24	0	
Dec	19	6	4	16	7	6	14	3	18	1.01	.39	26	2.9	5.5	2.4	3.6	17.0	20.1	16.2	17.8	78.1	64.8	71.3	71.4	15	12	4	10	13	28	0	
Sums	70	238	61	61	101	121	77	108	256	29.74	....	......	44.7	67.9	50.8	54.5	354.3	443.1	391.7	396.5	965.3	844.3	950.5	920.0	130	156	77	141	44	171	0	
	Percentages.																								Percentages.							
Means	6.4	21.8	5.6	5.6	9.2	11.1	7.0	9.9	23.4	.....	....	......	3.7	5.7	4.2	4.5	29.5	36.9	32.6	33.0	80.4	70.4	79.2	76.7	35.8	43.0	21.2	38.6	12.1	47.0	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.14 a. m., 1.14 p. m., and 9.14 p. m., local time.

Corrections for instrumental errors of barometer used: From 5.14 a. m., January 1, to 9.14 p. m., March 31, inclusive, +0.002 inch; from 7 a. m., April 1, to 11 p. m., September 29, inclusive, −0.002 inch; from 7 a. m., September 30, to 11 p. m., December 31, inclusive, +0.015 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 4.95; February, 4.92; March, 4.84; April, 4.69; May, 4.52; June, 4.44; July, 4.43; August, 4.44; September, 4.56; October, 4.68; November, 4.84; December, 4.90.

[1] One 7 a. m. and one 11 p. m. observation missed.

GEORGE KINGSBURY,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

DELAWARE BREAKWATER, DEL.

[Latitude, 38° 48′ N.; longitude, 75° 10′ W. Magnetic variation, 4° 30′ W. Elevation of barometer above sea-level, 20 feet. Elevation of exposed thermometer above ground, 13 feet. Elevation of rain-gauge above ground, 27 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.182	30.148	30.172	30.167	30.631	24	24.457	10	1.174	29.9	33.8	31.0	31.6	50	31	14	24	36	37.2	26.4	4,088	3,643	4,006	11,737	52	N.	10
Feb	30.270	30.244	30.266	30.260	30.781	2	29.772	7	10.09	35.6	41.1	36.9	37.9	63	3, 4 17	23	2, 27	40	44.4	31.2	3,765	4,257	3,549	11,571	52	SW.	4
Mar	30.006	29.935	29.974	29.972	30.583	8	29.223	10	1.360	34.0	40.6	36.5	37.0	60	19	19	8	41	43.7	30.1	4,615	4,722	4,796	14,133	52	NW.	7
Apr	30.009	29.972	30.008	29.996	30.426	14	29.559	23	.867	45.7	50.1	46.1	47.3	67	28	31	1	36	53.6	41.7	3,708	3,831	3,853	11,392	42	SW.	5
May	29.978	29.936	29.947	29.954	30.341	1	29.398	21	.943	56.4	61.9	57.4	58.6	80	8, 10	43	1	37	65.6	52.5	4,022	3,882	4,076	11,980	50	N.	15
June	29.997	29.963	29.980	29.980	30.462	2	29.663	11	.798	67.2	72.8	67.2	69.1	85	13	56	2	29	75.4	63.7	2,818	3,182	3,617	9,617	48	NW.	27
July	30.007	29.968	29.982	29.986	30.236	21	29.696	24	.540	71.6	77.6	71.5	73.6	89	7 22 23	62	1	27	81.0	68.4	3,244	3,185	3,201	9,630	52	W.	8
Aug	30.034	30.007	30.033	30.025	30.237	15	29.657	2	.580	69.2	76.7	69.2	71.7	87	20	64	8 12 17	23	78.1	66.5	3,334	3,466	3,035	9,835	40	S.	2
Sept	30.074	30.030	30.039	30.048	30.389	10	39.576	24	.813	64.0	70.2	65.9	66.7	79	30	53	27	26	71.7	61.7	4,292	4,237	4,137	12,666	44	NE.	11
Oct	30.154	30.105	30.133	30.131	30.588	17	29.4[illegible]4	29	1.151	55.9	61.3	57.3	58.2	79	2	45.5	24	33.5	63.6	53.6	4,635	4,288	4,158	13,081	53	NE.	23
Nov	30.186	30.129	30.157	30.157	30.644	17	29.771	14	.873	45.4	52.0	47.6	48.3	70	22	25	16	45	55.3	42.3	4,021	4,394	3,811	12,226	54	NW.	12
Dec	30.133	30.083	30.117	30.111	30.634	23	29.484	27	1.150	37.1	42.8	38.8	39.6	61	5	19.3	23	41.7	45.5	33.9	3,939	4,226	3,665	11,830	46	NW., SW.	15 24
Sums..	361.030	360.520	360.808	360.787	......	...	......	....	.....	612.0	680.9	625.4	639.6	....	......	.....	...	....	715.1	572.0	46,481	47,313	45,904	139,698	...	....	...
																					Averages.						
Means.	30.086	30.043	30.067	30.065	30.781	*2	29.223	†10	.....	51.0	56.7	52.1	53.3	89.0	‡7 ‡22 ‡23	14	§24	...	59.6	47.7	3,873.4	3,942.8	3,825.3	....	...	....	...

* February. † March. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	26	10	1	4	8	15	2	27	0	3.25	.79	20, 21	6.9	6.5	6.4	6.6	26.2	29.0	27.3	27.5	86.1	83.7	86.4	85.4	3	15	13	16	7	23	0	
Feb	17	6	9	8	6	18	2	18	0	4.07	1.16	24, 25	6.3	6.7	5.0	6.0	31.0	33.7	31.0	31.9	83.3	76.1	79.7	79.7	4	14	10	13	0	16	0	
Mar	17	10	5	7	9	21	3	21	0	2.84	1.16	10	5.1	5.0	3.9	4.7	27.2	30.2	30.7	29.9	76.2	67.9	79.7	74.6	8	17	6	11	2	16	0	
Apr	16	21	5	13	10	17	1	7	0	3.23	2.06	22, 23	4.9	5.1	4.5	4.8	41.4	41.7	41.0	41.4	85.4	75.4	83.6	81.5	11	11	8	15	0	1	0	
May	12	18	11	16	15	9	7	5	0	.91	.44	11	3.7	4.3	3.5	3.8	51.5	51.3	51.4	51.4	84.3	70.4	81.9	78.9	13	13	5	5	0	0	0	
June	6	5	9	20	24	16	6	4	0	4.09	1.34	27	4.6	4.7	4.4	4.6	64.5	63.1	63.5	63.5	89.8	73.5	87.9	83.7	8	19	3	8	0	0	0	
July	12	9	4	15	24	19	6	4	0	1.98	.52	24, 25	3.6	3.8	2.9	3.4	66.6	66.7	66.9	66.7	84.4	70.2	86.0	80.2	15	14	2	9	0	0	0	
Aug	7	27	9	9	16	14	5	6	0	1.89	.83	29, 30	3.9	3.2	2.0	3.0	64.2	64.5	64.7	64.5	84.4	67.2	85.9	79.2	19	9	3	5	0	0	0	
Sept	4	31	5	9	13	15	3	10	0	2.62	1.12	12	6.2	4.7	4.5	5.1	60.7	61.8	61.1	61.2	89.6	76.0	85.0	83.5	7	16	7	7	0	0	0	
Oct	17	29	9	10	10	10	1	7	0	5.12	1.85	13, 14	6.1	6.3	4.6	5.7	51.3	52.2	51.7	51.7	85.4	74.1	82.6	80.7	8	14	9	12	0	0	0	
Nov	16	10	3	4	16	21	8	12	0	1.58	1.06	26	3.9	4.4	2.8	3.7	40.0	40.8	41.2	40.5	81.8	66.4	79.6	75.9	14	13	3	8	0	3	0	
Dec	12	9	5	4	20	15	7	21	0	2.26	.95	23, 24	6.0	5.1	4.4	5.2	31.6	33.9	33.0	32.8	80.8	72.5	80.4	77.9	8	13	10	11	1	13	0	
Sums	162	185	75	119	171	190	51	142	0	33.84	....	......	61.2	59.8	48.9	56.6	556.2	568.4	563.5	562.5	1,011.5	873.4	998.7	961.2	118	168	79	120	10	72	0	
	Percentages.																								Percentages.							
Means	14.8	16.9	6.8	10.9	15.6	17.4	4.7	13.0	0	.....	....	......	5.1	5.0	4.1	4.7	46.4	47.4	47.0	46.9	84.3	72.8	83.2	80.1	32.3	46.0	21.6	32.9	2.7	19.5	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.08 a. m., 3.08 p. m., and 11.08 p. m., local time.

Correction for instrumental error of barometer used: From 7.08 a. m., January 1, to 11.08 p. m., December 31, inclusive, +0.004.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; February, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

TITUS S. TOWNSEND,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

DENISON, TEX.

[Latitude, 33° 48′ N.; longitude, 96° 32′ W. Magnetic variation, 10° E. Elevation of barometer above sea-level, 767 feet. Elevation of exposed thermometer above ground, 16 feet. Elevation of rain-gauge above ground, 28 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.368	29.328	29.349	29.348	29.828	22	28.898	12	.930	30.3	42.1	36.9	36.4	67.0	29	0.3	20	66.7	47.1	27.6	1,744	1,967	1,717	5,428	34	S.	12
Feb	29.448	29.413	29.441	29.434	29.940	18	28.806	15	1.134	36.2	47.1	41.8	41.7	75.0	15	5.0	4	70.0	51.6	33.4	1,494	1,677	1,654	4,825	28	S.	15, 16
Mar*	29.273	29.239	29.252	29.255	29.776	3	28.794	24	.982	45.4	59.5	51.6	52.2	77.4	18	27.2	19	50.2	63.7	43.6	1,248	1,553	1,332	4,133	20	SE.	23
Apr																											
May																											
June																											
July																											
Aug																											
Sept																											
Oct																											
Nov																											
Dec																											
Sums																											
																					Averages.						
Means																											

*Station closed March 31, 1883.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	26	7	3	15	19	4	1	12	6	1.19	0.58	3, 4	5.4	5.7	3.2	4.8	25.5	29.4	28.8	27.9	84.3	65.5	74.7	74.8	12	11	8	12	3	15	0	
Feb	31	4	8	11	12	8	1	3	6	2.78	1.38	23	7.1	7.4	5.8	6.8	32.1	34.1	33.7	33.3	86.0	66.0	75.4	75.8	7	5	16	12	4	12	0	
Mar*	32	8	5	2	23	10	4	5	4	3.54	2.46	24	6.2	6.9	4.6	5.9	38.0	39.8	39.7	39.2	76.3	52.4	65.8	64.8	6	16	9	11	0	8	0	
Apr																																
May																																
June																																
July																																
Aug																																
Sept																																
Oct																																
Nov																																
Dec																																
Sums																																
	Percentages.																								Percentages.							
Means																																

* Station closed March 31, 1883.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.41 a. m., 1.41 p. m., and 9.41 p. m., local time.
Correction for instrumental error of barometer used: From 5.41 a. m., January 1, to 9.41 p. m., March 31, inclusive, +.003.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.840; February, 0.840; March, 0.830; April, 0.800; May, 0.790; June, 0.780; July, 0.780; August, 0.780; September, 0.790; October, 0.800; November, 0.840; December, 0.850.

J. W. BYRAM,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

DENVER, COLO.

[Latitude, 39° 45′ N.; longitude, 105° W. Magnetic variation, 14° 45′ E. Elevation of barometer above sea-level, 5,294 feet. Elevation of exposed thermometer above ground, 73 feet. Elevation of rain-gauge above ground, 86 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles*	*Miles.*	*Miles.*	*Miles.*			
Jan	24.633	24.605	24.660	24.633	24.990	7	24.163	12	.827	21.6	35.5	28.2	28.4	61.0	11	-20.0	19	81.0	39.9	15.9	1,216	1,729	1,996	4,941	54	W.	12
Feb	24.751	24.713	24.773	24.746	25.203	26	24.012	15	1.191	15.2	29.7	21.1	22.0	56.0	23	-22.0	4	78.0	34.3	10.0	856	702	941	2,499	23	W.	15
Mar	24.712	24.685	24.707	24.701	25.271	2	24.323	30	.948	35.1	52.0	44.5	43.8	70.0	26	18.0	19	52.0	56.0	31.1	1,133	1,172	1,623	3,928	30	NW.	20
Apr	24.593	24.555	24.598	24.582	25.145	24	23.742	21	1.403	37.4	53.5	45.9	45.6	73.0	20	22.0	24	51.0	56.5	34.1	1,267	1,415	1,942	4,624	40	NW.	21
May	24.662	24.634	24.679	24.658	25.020	20	24.041	17	.988	46.4	61.6	54.6	54.2	79.2	6	31.5	30	47.7	66.4	41.9	1,234	1,536	2,113	4,883	32	NW.	27
June ..	24.781	24.753	24.784	24.773	24.983	24	24.453	10	.530	56.4	72.8	65.5	64.9	91.0	30	37.0	13	54.0	76.6	52.8	1,121	1,166	1,577	3,864	24	N.	8, 14
July	24.837	24.806	24.825	24.823	24.990	7	24.568	15	.422	61.7	80.8	71.2	71.2	95.5	19	52.0	7	43.5	82.6	58.7	1,491	1,276	1,897	4,664	27	SW.	15
Aug	24.870	24.844	24.860	24.858	25.025	27	24.601	21	.424	61.2	81.0	71.5	71.2	91.0	28	50.0	22	41.0	83.6	58.8	1,274	1,220	1,915	4,409	28	NW.	17
Sept	24.889	24.841	24.873	24.868	25.319	20	24.584	30	.735	51.5	72.5	61.0	61.7	87.7	1	40.5	21	47.2	74.7	50.2	1,426	1,352	1,763	4,541	32	NW.	9
Oct	24.704	24.655	24.708	24.680	25.112	31	24.315	27	.797	39.1	54.0	47.0	46.7	75.2	7	25.0	12	50.2	57.6	36.8	1,213	1,595	1,981	4,789	34	W.	1, 28
Nov	24.727	24.677	24.728	24.711	25.137	11	24.262	25	.875	34.0	53.7	41.0	42.9	73.2	30	23.4	14	49.8	56.1	31.1	1,612	1,628	1,683	4,923	33	W.	20
Dec	24.708	24.696	24.746	24.717	25.205	14	24.221	25	.984	27.8	38.8	31.0	32.5	62.0	17	2	31	60.0	42.3	23.5	1,893	2,186	1,972	6,001	48	SW.	25
Sums ..	296.867	296.463	296.941	296.759	......	....	.....	...	......	487.4	685.9	582.5	585.1	....	....	......	....	....	726.6	444.4	15,736	16,927	21,403	54,066	....	....	....
																					Averages.						
Means.	24.739	24.705	24.745	24.730	25.319	*20	23.742	†21	......	40.6	57.2	48.5	48.8	95.5	‡19	-22	§4	....	60.6	37.0	1,311.3	1,410.6	1,783.6	......	....	....	....

* September. † April. ‡ July. § February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	7	6	3	5	22	9	20	9	12	2.35	1.22	31	2.2	4.5	3.7	3.5	11.0	14.4	14.1	13.2	65.0	46.7	56.8	56.2	15	11	5	7	9	26	0	
Feb	24	2	2	6	28	5	1	3	13	0.45	0.40	15	0.8	2.1	1.1	1.3	7.6	13.2	12.3	11.0	72.3	52.2	68.9	64.5	22	6	0	3	10	27	0	
Mar	22	12	2	10	18	2	5	10	12	0.21	0.14	30, 31	3.3	3.6	2.4	3.1	25.6	24.5	25.7	25.3	68.7	38.2	51.0	52.6	18	9	4	4	0	15	0	
Apr	22	12	5	6	13	2	8	14	8	3.10	0.72	4, 5	5.6	6.3	4.7	5.5	28.5	26.3	30.1	28.3	71.5	41.4	59.2	57.4	8	9	13	13	0	10	0	
May	23	16	7	9	*14	6	3	7	8	4.30	2.02	8	5.3	5.7	5.0	5.3	37.8	32.6	38.9	36.4	73.3	39.3	59.2	57.3	7	13	10	12	0	1	0	
June	19	11	6	3	24	2	4	9	12	0.85	0.30	12	2.1	3.1	1.7	2.3	44.7	41.7	47.6	44.7	67.0	37.7	55.5	53.4	21	5	4	8	0	0	1	
July	22	3	3	9	30	4	5	13	4	2.27	0.78	4	3.3	4.6	4.1	4.0	48.6	44.8	51.7	48.4	63.9	33.5	51.1	50.5	15	10	6	12	0	0	4	
Aug	12	6	4	7	37	4	4	9	10	0.75	0.25	17	1.9	3.7	2.5	2.7	48.1	43.8	50.6	47.5	65.5	30.4	50.1	48.7	16	15	0	5	0	0	4	
Sept	18	5	6	7	25	11	4	10	4	1.08	0.44	13	2.9	3.4	2.4	2.9	38.4	33.1	42.4	38.0	62.5	27.8	52.8	47.7	17	10	3	9	0	0	0	
Oct	18	9	4	10	21	2	7	17	5	1.49	0.98	10, 11	4.5	4.2	2.5	3.7	29.2	28.5	30.2	29.3	70.3	42.7	55.6	56.2	13	13	5	7	0	6	0	
Nov	10	6	2	11	43	7	6	5	0	0.32	0.20	4, 5	1.6	3.3	1.5	2.1	21.6	17.6	23.0	20.7	61.9	27.3	49.8	46.3	18	12	0	3	0	16	0	
Dec	13	6	3	7	45	3	4	11	1	2.32	1.73	5, 6	3.3	3.2	2.9	3.1	18.3	19.9	20.1	19.4	68.9	49.2	65.7	61.8	17	10	4	9	2	24	0	
Sums	210	94	47	90	320	57	71	117	89	19.49	....	......	36.8	47.7	34.5	39.5	359.4	340.4	386.7	362.2	810.8	466.4	678.7	652.1	187	123	54	92	21	125	9	
	Percentages.																								Percentages.							
Means	19.2	8.6	4.3	8.2	29.2	5.2	6.5	10.7	8.1	.....	....	......	3.1	4.0	2.9	3.3	30.0	28.4	32.2	30.2	67.6	38.9	56.6	54.4	51.4	33.8	14.8	25.2	5.8	34.2	2.5	

* One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.08 a. m., 1.08 p. m., and 9.08 p. m., local time.
Correction for instrumental error of barometer used: From 5.08 a. m., January 1, to 9.08 p. m., December 31, inclusive, +0.036 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 5.520; February, 5.520; March, 5.440; April, 5.270; May, 5.160; June, 5.040; July, 5.010; August, 5.020; September, 5.110; October, 5.260; November, 5.500; December, 5.520.

F. M. NEAL,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

DES MOINES, IOWA.

[Latitude, 41° 35′ N.; longitude, 93° 37′ W. Magnetic variation, 9° 45′ E. Elevation of barometer above sea-level, 849 feet. Elevation of exposed thermometer above ground, 35 feet. Elevation of rain-gauge above ground, 45 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.257	29.223	29.249	20.243	29.730	23	28.547	12	1.183	3.9	12.9	9.5	8.8	39	9, 12, 30	—26.0	21	65.0	19.7	—2.1	1,537	2,020	1,700	5,277	31	N.	10
Feb	29.366	29.352	29.351	29.356	29.858	17	28.569	15	1.289	14.0	22.9	20.3	19.1	50	28	—23.0	4	73.0	27.1	8.2	1,131	1,666	1.582	4,370	22	NW.	17
Mar	29.190	29.168	29.183	29.180	29.751	3	28.563	17	1.188	28.5	37.7	32.6	32.9	67	17	5.0	7	62.0	41.3	24.5	1,622	2,273	1,911	5,836	31	N	18
Apr	28.997	28.957	28.979	28.978	29.433	24	28.437	22	.996	44.3	59.8	51.3	51.8	89	13	29.0	1	60.0	63.3	41.8	1,723	2,626	2,408	6,757	36	SW.	14
May ...	29.027	29.003	29.010	29.013	29.437	11	28.443	18	.994	50.4	61.6	55.5	55.8	83	6	35.0	21	48.0	65.4	48.0	1,526	2,290	1,916	5,732	30	SW.	18
June ...	29.056	29.022	29.023	29.034	29.240	14	28.706	11	.534	61.2	74.9	66.3	67:5	93	29	50.0	3	43.0	78.2	59.2	895	1,859	1,444	4,198	22	S.	1
July	29.117	29.091	29.078	29.095	29.435	18	28.800	12, 16	.635	66.9	81.6	72.2	73.6	97	1	54.0	8	43.0	85.6	65.2	1,079	1,825	1,620	4,524	40	SW.	16
Aug.....	29.195	29.162	29.160	29.172	29.419	5	28.769	21	.650	62.4	78.6	68.2	69.7	91	21	48.0	24	43.0	80.9	60.8	828	1,552	1,317	3,697	28	SW.	18
Sept.....	29.197	29.165	29.177	29.180	29.526	9	28.822	24	.704	52.7	68.4	57.0	59.4	90	1	37.0	26	53.0	70.7	50.2	866	1,618	1,241	3,725	24	N.	20
Oct......	29.200	29.165	29.179	29.181	29.656	15	28.619	28	1.037	43.9	54.8	47.9	48.7	80	8	28.0	20	52.0	56.6	41.6	1,085	1,629	1,461	4,175	24	SE.	1
Nov.....	29.182	29.134	29.154	29.157	29.740	12	28.524	25	1.216	33.8	45.6	37.5	39.0	67	8	6.0	15	31.0	48.9	28.2	1,494	1,972	1,781	5,247	32	N.	25
Dec	29.169	29.175	29.195	29.180	29.613	14	28.503	17	1.110	23.0	32.5	26.8	27.8	57	12	—10.2	27	67.2	36.8	17.4	1,412	1,779	1,659	4,850	24	N.	14, 17
Sums..	349.953	349.617	349.738	349.769	......	....	......	.....	.....	485.0	630.8	544.6	553.6	....	......	......	...	...	674.5	443.0	15,218	23,109	20,070	58,397	..	....	...
																					Averages.						
Means.	29.163	29.135	29.145	29.148	29.858	*17	28.437	†22	...	40.4	52.6	45.4	46.1	97	‡1	—26	§21	...	56.2	36.9	1,268.2	1,925.8	1,672.5	......	...	....	...

* February. † April. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	24	9	5	14	4	6	4	26	1	1.72	.38	7	4.2	6.8	4.9	5.3	—6.8	2.2	0.1	—1.5	60.7	61.9	63.0	61.9	10	13	8	16	25	31	0	One 11 p. m. observation missed.
Feb	15	6	2	9	8	14	8	19	8	2.51	.98	24	4.6	6.2	5.2	5.3	6.2	12.2	10.6	9.7	67.1	63.2	66.0	65.4	9	7	12	12	15	26	0	One 7 a. m. observation missed.
Mar	31	13	14	6	4	5	10	10	0	.57	.29	27	5.4	7.0	5.5	6.0	20.3	23.0	23.7	22.3	70.5	55.7	69.6	65.3	5	14	12	5	4	24	0	
Apr	9	11	14	9	9	14	10	9	5	3.48	1.75	21, 22	6.4	7.0	5.7	6.4	36.0	37.1	40.0	37.7	73.1	47.1	66.9	62.4	6	12	12	14	0	2	0	
May	27	7	9	11	11	9	2	13	4	9.76	2.91	8, 9	6.8	8.0	6.5	7.1	44.0	45.7	47.2	45.6	79.2	59.4	74.6	71.1	4	11	16	19	0	0	0	
June	23	14	4	6	10	8	5	15	5	7.75	2.94	17	6.4	6.7	4.3	5.8	56.3	57.8	59.8	58.0	84.1	58.0	80.0	74.0	6	12	12	15	0	0	1	
July	13	11	4	7	10	32	7	4	5	2.37	.74	29, 30	5.4	6.1	4.9	5.5	61.4	62.5	64.5	62.8	82.6	54.4	77.5	71.5	7	14	10	11	0	0	9	
Aug	15	10	5	10	15	16	9	5	8	2.83	1.31	14	5.8	7.0	4.2	5.7	57.4	59.3	60.7	59.1	84.1	53.1	77.1	71.4	6	16	9	11	0	0	1	
Sept	19	12	10	7	14	9	8	5	6	1.88	.78	23, 24	5.7	4.9	3.5	4.7	46.7	46.3	48.3	47.1	80.4	48.0	73.7	67.4	11	11	8	7	0	0	0	
Oct	18	9	8	22	15	5	7	8	1	4.42	1.62	1, 2	6.1	7.6	5.0	6.2	38.5	40.3	41.2	40.0	81.7	61.8	78.5	74.0	7	11	13	15	0	1	0	
Nov	17	3	3	7	12	19	12	12	5	1.32	.59	5	3.1	4.8	2.8	3.6	25.6	26.6	28.1	26.8	71.8	49.8	68.6	63.4	14	12	4	6	8	18	0	
Dec	24	9	3	9	6	13	10	17	2	1.08	.40	6	4.2	6.1	3.5	4.6	15.4	18.5	17.2	17.0	72.3	57.1	68.5	66.0	11	14	6	10	12	26	0	
Sums	235	114	81	117	118	150	92	143	45	39.69	....	......	64.1	78.2	56.0	66.2	401.0	431.5	441.2	424.6	907.6	669.5	864.0	813.8	96	147	122	141	59	128	11	
	Percentages.																								Percentages.							
Means	21.5	10.4	7.4	10.7	10.8	13.7	8.4	13.1	4.1	......	....	......	5.8	6.5	4.7	5.5	33.4	36.0	36.8	35.4	75.6	55.8	72.0	67.8	26.3	40.3	33.4	38.6	16.2	35.1	3.0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.53 a. m., 1.53 p. m., and 9.53 p. m., local time.

Correction for instrumental error of barometer used: From 5.53 a. m., January 1, to 9.53 p. m., December 31, inclusive, +.012 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.970; February, 0.970; March, 0.960; April, 0.930; May, 0.890; June, 0.880; July, 0.880; August, 0.880; September, 0.890; October, 0.920; November, 0.950; December, 0.980.

F. W. CONRAD,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

DETROIT, MICH.

[Latitude, 42° 20′ N.; longitude, 83° 3′ W. Magnetic variation, 0° 15′ E. Elevation of barometer above sea-level, 661 feet. Elevation of exposed thermometer above ground, 61 feet. Elevation of rain-gauge above ground, 71 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.			Monthly mean.	Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.			Total.	Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.		Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.		Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.405	29.366	29.397	29.389	29.833	4	28.767	20	1.066	19.3	25.1	20.7	21.7	50.0	30	-8.0	22	58.0	28.2	15.0	2,908	2,806	3,036	8,750	33	S., SW.	18, 31
Feb	29.500	29.473	29.482	29.485	29.911	2	26.955	24	.956	22.9	29.7	26.0	26.2	57.8	16	6.2	6	51.6	31.5	18.2	1,967	2,380	2,294	6,641	31	S.	16
Mar	29.292	29.253	29.287	29.277	29.774	5	28.649	10	1.125	25.9	34.7	29.7	30.1	58.5	14	3.0	20	55.5	38.5	21.2	1,897	2,539	2,589	7,025	35	N.	18
Apr.*	29.276	29.241	29.273	29.263	29.531	2	28.796	11	.735	41.4	52.4	44.9	46.2	78.5	14	18.5	1	60.0	55.8	36.2	1,982	2,885	2,433	7,300	36	SW.	11
May	29.247	29.201	29.230	29.226	29.568	6	28.856	14	.712	49.6	60.0	52.5	54.0	77.0	19	32.5	21, 22	44.5	64.2	44.1	2,161	3,225	2,872	8,258	40	S.	19
June	29.225	29.194	29.212	29.210	29.661	1	28.785	10	.876	63.8	73.1	66.7	67.9	87.0	23	46.0	1	41.0	76.3	58.9	1,280	2,124	1,869	5,273	33	SW.	17
July	29.295	29.267	29.284	29.282	29.525	18	28.937	12	.588	66.5	76.8	69.6	71.0	91.0	22	50.0	9	41.0	80.3	61.3	1,608	2,435	2,064	6,107	31	W.	2
Aug	29.384	29.339	29.367	29.363	29.579	27	29.071	2	.508	61.1	74.6	67.4	67.7	89.0	22	48.6	14	40.4	77.1	57.0	1,679	2,376	2,095	6,150	33	SE.	22
Sept.*	29.397	29.342	29.366	29.368	29.744	9	28.803	24	.941	54.9	65.8	58.3	59.7	81.0	15	29.8	26	51.2	68.2	50.2	1,739	2,151	2,146	6,036	26	W.	24
Oct	29.420	29.391	29.398	29.403	29.929	16	28.578	29	1.351	47.4	55.2	49.9	50.8	78.0	9	34.4	16	43.6	58.0	44.6	2,128	2,707	2,330	7,165	32	SE.	18
Nov	29.366	29.338	29.359	29.354	29.885	28	28.761	21	1.124	40.8	47.1	43.5	43.8	67.0	22	14.0	16	53.0	51.7	36.9	2,654	3,070	2,830	8,554	33	SW.	9
Dec	29.352	29.320	29.358	29.343	29.807	22	28.836	27	.971	31.3	36.1	33.0	33.5	58.0	7	11.0	22, 23	47.0	40.6	26.0	2,236	2,905	2,544	7,685	28	{S., E., SW.}	7, 23
Sums ..	352.159	351.725	352.013	351.963	.....	...	.....	...	.....	524.9	630.6	562.2	572.6	....	....	....	.....	..	670.4	469.6	24,239	31,603	29,102	84,944	....	....	.....
																					Averages.						
Means	29.347	29.310	29.334	29.330	29.929	†16	28.578	†29	.....	43.7	52.6	46.8	47.7	91.0	‡22	-8.0	§22	...	55.9	39.1	2,019.9	2,633.6	2,425.2	.....	....	....	.....

* One 7 a. m. observation missed.

† October.

‡ July.

§ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	5	12	9	6	9	30	12	10	0	1.69	0.43	17	7.2	6.3	6.0	6.5	15.6	15.4	15.2	15.4	85.2	66.0	78.7	76.6	4	15	12	18	19	29	0	
Feb	5	3	8	1	6	22	24	7	8	3.22	1.12	3	6.5	7.0	5.9	6.5	19.4	21.8	20.6	20.6	86.2	71.9	79.8	79.3	5	12	11	15	16	26	0	
Mar	14	1	15	3	8	13	14	15	10	1.55	0.75	19	4.5	7.4	3.8	5.2	21.2	23.2	23.5	22.6	82.5	63.3	77.4	74.4	7	16	8	9	9	29	0	
Apr.*	15	13	8	12	13	7	12	8	2	1.53	0.61	5	5.1	7.0	4.4	5.5	34.0	34.3	34.6	34.3	75.4	52.4	68.3	65.4	7	13	9	11	0	8	0	
May	15	8	11	10	13	10	14	11	1	5.11	1.20	26	5.7	6.7	5.1	5.8	43.0	46.7	43.1	44.3	78.6	63.9	72.1	71.5	6	15	10	21	0	0	0	Last snow May 22; last frost May 24.
June	4	4	7	11	13	20	14	7	10	4.32	0.63	18	5.5	6.4	4.8	5.6	58.1	60.4	58.3	58.9	82.1	65.7	75.0	74.3	7	14	9	16	0	0	0	
July	7	9	6	4	17	19	20	5	6	5.29	1.31	23	3.9	5.2	4.4	4.5	60.6	61.3	60.5	60.8	81.7	60.1	73.4	71.7	8	18	5	12	0	0	1	
Aug	7	18	4	5	14	10	18	15	2	0.90	0.26	28	2.8	4.0	2.5	3.1	54.6	56.5	54.8	55.3	79.3	54.5	64.7	66.2	17	10	4	9	0	0	0	
Sept.*	7	18	15	8	7	8	15	10	1	1.50	0.53	23	5.1	5.5	3.9	4.8	49.8	50.2	50.2	49.9	81.6	58.7	75.5	71.9	7	15	7	11	0	1	0	First frost September 9.
Oct	11	19	9	14	5	5	9	19	2	2.55	0.51	29	6.5	7.7	6.4	6.9	42.5	41.6	41.8	42.0	83.7	61.6	74.2	73.2	5	10	16	15	0	0	0	
Nov	3	4	8	21	12	10	23	7	2	2.24	0.81	21	5.8	5.8	4.2	5.3	33.3	34.9	36.6	34.9	75.2	64.2	76.9	72.1	9	11	10	11	1	7	0	First ice Nov. 12.
Dec	8	6	6	4	12	26	21	10	0	2.67	0.55	30	6.7	6.5	5.0	6.1	25.4	27.6	26.5	26.5	78.9	71.8	77.2	76.0	3	20	8	15	8	19	0	
Sums	101	115	106	99	129	180	196	124	44	32.57	....	......	65.3	75.5	56.4	65.8	457.0	473.9	465.7	465.5	970.4	754.1	893.2	872.6	85	169	109	163	53	119	1	
	Percentages.																								Percentages.							
Means	9.2	10.5	9.7	9.0	11.8	16.5	17.9	11.3	4.0	.....	....	......	5.4	6.3	4.7	5.5	38.1	39.5	38.8	38.8	80.9	62.8	74.4	72.7	23.4	46.6	30.0	44.7	14.5	32.6	0.3	

* One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.36 a. m., 2.36 p. m., and 10.36 p. m., local time.
Correction for instrumental error of barometer used: From 6.36 a. m., January 1, to 10.36 p. m., December 31, inclusive, +0.017 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.760; February, 0.750; March, 0.750; April, 0.730; May, 0.730; June, 0.690; July, 0.690; August, 0.690; September, 0.690; October, 0.710; November, 0.740; December, 0.760.

CHAS. K. CUNNINGHAM,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

DODGE CITY, KANS.

[Latitude, 37° 45′ N.; longitude, 100° W. Magnetic variation, 12° 30′ E. Elevation of barometer above sea-level, 2,517 feet. Elevation of exposed thermometer above ground, 21 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan.[1] ..	27.457	27.417	27.470	27.448	27.786	22	26.836	12	.950	14.2	30.2	21.9	22.1	59.0	9	—20.0	19	79.0	34.5	10.3	[3]1,762	1,983	[4]2,096	[5]5,791	42	E.	18
Feb	27.588	27.542	27.568	27.566	28.141	4	26.777	15	1.364	18.0	34.9	25.7	26.2	67.0	28	—20.0	4	87.0	37.9	15.4	2,168	2,611	2,431	7,210	38	NW.	2
Mar	27.449	27.409	27.437	27.432	28.033	3	26.988	18	1.045	32.3	49.9	40.2	40.8	72.0	22	15.0	19	57.0	51.7	29.4	2,276	2,705	2,645	7,626	46	NW.	18
Apr.[2] ...	27.255	27.242	27.244	27.247	27.896	15	26.315	21	1.581	43.2	63.3	52.4	53.0	85.0	13	29.0	6	56.0	65.8	42.4	2,894	3,823	3,798	10,515	64	S.	20
May	27.321	27.289	27.308	27.306	27.644	10	26.655	17	.989	50.7	71.8	59.0	60.5	88.0	23	35.0	3	53.0	74.5	49.3	2,459	3,504	3,746	[6]9,709	54	W.	17
June	27.374	27.361	27.361	27.365	27.583	29	26.993	11	.590	62.4	80.0	69.2	70.5	97.0	20	48.0	10	49.0	83.6	59.5	2,833	3,204	3,499	9,536	56	(7)	1
July	27.437	27.404	27.419	27.420	27.669	17	27.118	18	.551	68.3	86.2	74.2	76.2	99.0	12, 20	56.0	8	43.0	88.4	66.4	3,147	4,500	4,433	12,080	43	SW.	15
Aug	27.489	27.485	27.484	27.486	27.640	28	27.199	21	.441	64.5	79.7	71.0	71.7	92.0	31	53.0	23	39.0	82.5	63.4	2,426	3,185	3,235	8,846	70	NW.	9
Sept	27.497	27.469	27.484	27.483	27.817	20	27.147	13	.670	56.0	73.9	62.5	64.1	97.0	1	39.5	23	57.5	76.4	54.0	2,244	3,061	3,050	8,355	40	NE., NW.	4, 20
Oct	27.408	27.393	27.419	27.407	27.901	31	26.961	1	.940	44.9	57.8	49.7	50.8	90.0	1	26.0	25	64.0	59.2	42.0	3,043	3,397	3,289	9,729	44	E.	23
Nov	27.450	27.410	27.449	27.436	28.013	12	26.929	25	1.084	32.2	53.6	39.6	41.8	73.0	30	14.0	14	59.0	55.8	29.1	2,031	2,877	2,832	7,740	40	N., SE.	13, 16
Dec	27.462	27.432	27.488	27.461	27.981	14	26.851	26	1.130	28.2	43.4	32.9	34.8	67.0	1	2.0	31	65.0	46.2	24.3	1,964	2,719	2,372	7,055	44	NW.	26
Sums ..	329.187	328.853	329.131	329.057	......	....	......	....	......	514.9	724.7	598.3	612.5	....	......	......	....	....	756.5	485.5	29,247	37,519	37,426	104,192	....	....	.....
																					Averages.						
Means.	27.432	27.404	27.428	27.421	28.141	[8]4	26.315	[9]21	......	42.9	60.4	49.9	51.1	99.0	[10]12 20	—20.0	[11]19 [8]4	..	63.0	40.5	2,437.2	3,126.6	3,118.8	......	....	....	.....

[1] Two 7 a. m., one 3 p. m., two 11 p. m. observations missed.
[2] One 7 a. m. observation missed.
[3] Nine observations missed.
[4] Eight observations missed.
[5] Twenty-six observations missed.
[6] For 25 days.
[7] No record.
[8] February.
[9] April.
[10] July.
[11] January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from— North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. Total amount.	Any 3 consecutive 8 hourly measurements. Largest amount.	Date.	Washington time. Cloudiness (in tenths). 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	Remarks.
1883.										*In.*	*In.*						°	°	°	°												
Jan.[1]	12	8	10	7	4	14	6	25	2	0.44	0.12	16	4.1	5.3	3.8	4.4	7.8	16.7	13.3	12.6	76.6	60.4	69.5	68.8	11	10	7	7	13	29	0	
Feb	11	7	8	15	5	7	7	21	3	1.42	1.13	13	3.5	5.0	2.4	3.6	12.2	16.0	15.4	14.5	78.9	49.8	66.8	65.2	15	8	5	4	10	25	0	
Mar	18	13	13	7	9	9	9	10	5	0.42	0.22	24	4.4	4.5	3.7	4.2	24.7	24.4	24.4	24.5	74.0	43.4	55.3	57.6	14	10	7	4	0	19	0	
Apr.[2]	11	8	..	7	10	21	15	13	4	2.40	1.49	20, 21	3.1	4.5	2.8	3.5	34.1	33.8	34.8	34.2	71.7	39.2	55.3	55.4	18	15	1	6	0	1	0	Last frost Apr. 25.
May	11	13	5	6	5	20	14	14	5	5.41	3.65	16, 17	3.3	3.4	3.4	3.4	42.9	44.3	45.5	44.2	75.9	39.3	62.7	59.3	12	16	8	9	0	0	0	
June	7	5	11	11	15	29	6	2	4	4.81	1.41	8	4.2	4.0	3.3	3.8	58.0	58.6	60.2	58.9	86.2	50.3	72.9	69.8	11	17	2	10	0	0	6	
July	5	8	3	10	16	35	12	2	2	2.61	0.81	6	4.1	4.4	4.7	4.4	58.5	60.6	60.5	59.9	71.8	44.7	62.8	59.8	12	12	7	8	0	0	15	
Aug	4	11	9	49	11	7	1	1	0	5.66	1.64	11, 12	4.6	4.4	3.7	4.2	61.9	64.3	64.5	63.6	91.4	61.5	80.6	77.8	12	12	7	11	0	0	3	
Sept	5	12	5	36	9	3	3	17	0	1.32	0.58	13, 14	4.6	4.0	2.3	3.6	50.6	51.5	52.6	51.6	82.6	47.9	71.2	67.2	12	15	8	7	0	0	1	First frost Sept. 21.
Oct	21	9	11	22	4	1	7	15	3	2.82	1.48	16, 17	5.6	6.5	4.5	5.5	39.3	40.7	40.4	40.1	81.1	57.7	71.6	70.1	8	12	11	10	0	1	0	
Nov	9	4	9	17	15	7	7	16	6	0.12	0.12	4, 5	1.5	3.0	1.3	1.9	26.2	27.5	28.5	27.4	79.0	39.6	65.0	61.2	20	10	0	2	0	18	0	
Dec	7	6	8	12	8	7	15	22	13	1.07	0.64	5	3.1	5.4	3.1	3.9	21.5	25.0	25.5	24.0	75.4	52.9	74.9	67.7	11	15	5	5	4	27	0	
Sums	121	104	87	199	111	160	102	158	47	28.50	......	......	46.1	54.4	39.0	46.4	437.7	463.4	465.6	455.5	944.6	586.7	808.6	779.9	151	152	58	83	27	120	25	
	Percentages.																								Percentages.							
Means	11.1	9.6	8.0	18.3	10.2	14.7	9.4	14.5	4.3	......	......	......	3.8	4.5	3.2	3.8	36.5	38.6	38.8	38.0	78.7	48.9	67.4	65.0	41.8	42.1	16.1	22.7	7.4	33.1	6.8	

[1] Two 7 a. m., one 3 p. m., two 11 p. m. observations missed.

[2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.27 a. m., 1.27 p. m., and 9.27 p. m., local time.

Correction for instrumental error of barometer used: From 5.27 a. m., January 1, to 9.27 p. m., December 31, inclusive, +.022 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.75; February, 2.74; March, 2.73; April, 2.64; May, 2.55; June, 2.51; July, 2.50; August, 2.48; September, 2.55; October, 2.63; November, 2.74; December, 2.80.

J. C. LANOUETTE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

DUBUQUE, IOWA.

[Latitude, 42° 30′ N.; longitude, 90° 44′ W. Magnetic variation, 8° 15′ E. Elevation of barometer above sea-level, 665 feet. Elevation of exposed thermometer above ground, 32 feet. Elevation of rain-gauge above ground, 48 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*			°	°	°	°	°		°		°			*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.407	29.384	29.409	29.400	29.869	23	28.697	30	1.172	5.4	14.7	10.4	10.2	36.0	12, 13	—26.2	21	62.2	19.7	0.1	764	1,176	1,075	3,015	24	W.	13, 21
Feb	29.533	29.507	29.524	29.521	29.991	17	28.785	16	1.206	12.7	24.4	19.3	18.8	47.2	28	—15.0	1	62.2	27.2	8.2	659	884	949	2,492	22	W.	16
Mar	29.345	29.314	29.339	29.333	29.859	7	28.681	17	1.178	25.5	36.4	30.8	30.9	58.7	17	4.8	7	53.9	39.4	21.9	756	1,460	1,364	3,580	23	NE.	18
Apr	29.216	29.178	29.192	29.195	29.564	2	28.670	10	.894	42.3	57.0	49.8	49.7	77.8	18	25.7	1	52.1	60.9	39.2	1,284	1,950	1,764	4,998	31	E.	22
May	29.216	29.194	29.207	29.206	29.553	11	28.754	14, 18	.799	49.8	60.4	53.7	54.6	83.6	18	31.7	21	51.9	64.3	45.2	973	1,558	1,492	4,023	26	S.	18
June	29.221	29.193	29.197	29.204	29.509	1	28.883	11	.626	61.8	74.5	66.8	67.7	94.0	29	50.0	1	44.0	77.5	58.7	800	1,622	1,411	3,833	24	SW.	11
July	29.286	29.268	29.254	29.269	29.615	18	28.944	12	.671	66.2	80.1	71.8	72.5	96.0	2	50.8	18	45.2	82.6	62.5	1,028	1,555	1,379	3,962	26	NW.	20
Aug	29.383	29.345	29.347	29.358	29.619	6	28.994	21	.625	61.4	76.6	67.6	68.5	91.8	19	49.3	24	42.5	78.6	58.0	657	1,426	1,154	3,237	17	S.	22
Sept	29.378	29.342	29.362	29.361	29.761	9	28.919	24	.842	51.6	67.8	56.9	58.8	84.0	15	34.5	9	49.5	69.8	48.1	622	1,281	1,130	3,033	20	NW.	20
Oct	29.407	29.370	29.389	29.390	29.891	20	28.765	29	1.126	44.2	53.7	48.2	48.7	84.8	8	31.2	1	53.6	55.9	42.7	1,019	1,519	1,332	3,870	20	NW.	31
Nov	29.363	29.316	29.322	29.334	29.899	15	28.770	25	1.129	38.2	44.2	38.1	38.5	62.0	4, 25	7.2	16	54.8	47.6	30.2	1,356	1,785	1,505	4,646	28	NW.	15
Dec	29.346	29.340	29.366	29.351	29.794	22	28.712	17	1.082	23.0	31.2	26.8	27.0	57.7	1	—5.8	19	63.5	35.6	18.6	1,355	1,439	1,365	4,159	22	S.	17
Sums ..	352.101	351.751	351.908	351.922	......	...	......	......	......	477.1	621.0	539.7	545.9	....	.....	......	...	....	659.1	433.4	11,273	17,655	15,920	44,848	....	......	.....
																					Averages.						
Means .	29.342	29.313	29.326	29.327	29.991	*17	28.670	†10	......	39.8	51.8	45.0	45.5	96.0	‡2	—26.2	§21	....	54.9	36.1	939.4	1,471.2	1,326.7	......	.....	......	.....

* February. † April. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	8 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	6	4	3	7	7	6	20	21	19	1.59	0.31	9, 10	5.1	6.4	4.2	5.2	—6.4	—0.3	—2.5	—3.1	58.4	53.0	57.8	56.4	9	15	7	15	27	31	0	
Feb	6	3	5	3	9	14	17	10	17	2.60	0.64	2	5.2	5.0	5.6	5.3	2.2	9.3	8.8	6.8	63.2	54.8	64.0	60.7	8	11	9	11	18	26	0	
Mar	5	8	3	9	6	6	11	32	13	0.32	0.16	25, 26	4.8	5.7	3.3	4.6	16.2	19.9	20.5	18.9	67.9	52.1	65.4	61.8	12	13	6	6	3	27	0	
Apr	8	10	13	9	9	15	7	6	13	1.93	0.72	14	5.9	6.0	5.0	5.6	30.7	32.4	35.5	32.9	64.4	43.3	59.5	55.7	7	13	10	7	0	3	0	
May	13	7	10	6	12	6	14	12	13	7.13	2.10	9	6.8	7.2	5.1	6.4	41.5	40.9	43.1	41.8	74.0	53.7	68.7	65.5	8	10	13	16	0	1	0	
June	11	10	2	13	12	14	14	12	2	5.34	1.26	11, 12	6.2	7.3	4.7	6.1	53.9	55.4	57.5	55.6	76.1	53.4	72.7	67.4	3	18	9	13	0	0	1	
July	7	5	3	5	25	22	11	13	2	7.90	2.31	23	4.2	5.7	4.1	4.7	58.9	60.1	62.4	60.5	77.9	51.7	74.2	67.9	8	17	6	13	0	0	5	
Aug	11	4	10	11	18	10	7	18	4	2.70	1.19	19	4.4	5.3	3.7	4.5	54.7	58.9	58.0	55.5	79.1	47.1	71.9	66.0	13	11	7	6	0	0	1	
Sept	10	5	9	17	10	9	5	22	3	2.09	0.85	23, 24	4.4	4.8	3.8	4.3	46.0	44.8	48.0	46.3	81.0	45.6	72.8	66.5	13	9	8	7	0	0	0	First light frost Sept. 8; first killing frost Sept. 26.
Oct	15	16	10	18	10	0	11	10	3	4.44	1.12	13	7.4	7.3	6.5	7.1	37.5	36.1	38.5	37.4	78.0	54.7	70.3	67.7	4	12	15	16	0	2	0	
Nov	1	0	0	13	26	8	19	21	2	1.65	0.58	4, 5	4.8	5.0	4.1	4.6	24.0	24.7	26.5	25.1	68.7	48.7	63.3	60.2	9	13	8	8	3	15	0	
Dec	14	2	4	6	18	8	21	20	0	1.88	0.45	17, 18	5.1	5.6	3.9	4.9	12.9	15.6	15.6	14.7	65.5	53.4	63.3	60.7	11	12	8	11	12	26	0	First snow Oct. 13.
Sums ..	107	74	72	117	162	118	157	197	91	39.57	....	......	64.3	71.3	54.0	63.3	372.1	392.8	411.9	392.4	854.2	611.5	803.9	756.5	105	154	106	129	63	131	7	
	Percentages.																								Percentages.							
Means.	9.8	6.8	6.6	10.7	14.8	10.8	14.2	18.0	8.3	....	....	......	5.4	5.9	4.5	5.3	31.0	32.7	34.3	32.7	71.2	51.0	67.0	63.1	28.8	42.2	29.0	35.3	17.3	35.9	1.0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.05 a. m., 2.05 p. m., and 10.05 p. m., local time.

Correction for instrumental error of barometer used: From 6.05 a. m., January 1, to 10.05 p. m., December 31, inclusive, +0.00 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.77; February, 0.76; March, 0.75; April, 0.73; May, 0.70; June, 0.69; July, 0.69; August, 0.69; September, 0.70; October, 0.72; November, 0.75; December, 0.77.

JAMES HARVEY SMITH,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

DULUTH, MINN.

[Latitude, 46° 48′ N.; longitude, 92° 6′ W. Magnetic variation, 10° 15′ E. Elevation of barometer above sea-level, 687 feet. Elevation of exposed thermometer above ground, 57 feet. Elevation of rain-gauge above ground, 66 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.334	29.315	29.347	29.332	29.863	3	28.696	9	1.167	3.5	7.5	1.4	1.8	28.0	19	−35.0	22	63.0	11.3	−9.2	2,033	2,231	1,959	6,223	56	NW.	10
Feb	29.438	29.391	29.410	29.413	29.958	2	28.867	16	1.091	4.7	20.4	13.5	12.9	48.0	28	−27.0	1	75.0	22.6	0.7	1,704	1,880	2,037	5,621	44	W.	16
Mar	29.294	29.254	29.294	29.281	28.842	7	28.294	17	1.548	16.1	29.4	22.2	22.6	52.0	17	−13.2	7	65.2	32.5	11.7	2,687	2,455	2,616	7,758	44	NW.	10
Apr	29.207	29.163	29.182	29.184	29.576	1	28.467	15	1.109	36.7	44.3	39.6	40.3	62.0	17	18.0	2	44.0	47.5	32.7	2,304	2,915	2,614	7,833	58	NE.	22
May	29.218	29.191	29.206	29.205	29.497	2	28.555	18	.942	44.1	47.8	44.6	45.5	71.0	26	32.0	11	39.0	52.3	35.6	2,128	3,081	2,314	7,523	38	NE.	18
June	29.165	29.137	29.150	29.151	29.404	25	28.808	11	.596	57.2	63.8	57.3	59.4	92.2	28	41.3	11	50.9	67.9	50.0	1,086	1,616	1,381	4,083	36	NW.	29
July	29.197	29.174	29.179	29.183	29.494	18	28.755	16	.739	68.1	71.3	63.6	66.0	99.0	1	47.0	14	52.0	74.2	57.1	1,935	2,171	2,057	6,163	36	NW.	4
Aug	29.293	29.270	29.274	29.279	29.599	26	28.695	21	.904	59.4	67.2	61.8	62.8	85.7	18	48.0	23	37.7	69.6	56.0	1,141	1,632	1,466	4,239	33	NW.	21
Sept	29.330	29.299	29.312	29.314	29.714	8	28.942	26	.772	50.4	59.6	53.9	54.6	79.0	11	30.0	28	49.0	62.4	48.1	1,814	2,061	1,652	5,527	40	NE.	7, 21
Oct	29.353	29.329	29.340	29.341	29.901	20	28.628	29	1.273	40.8	47.6	44.1	44.1	64.0	8	21.0	20	44.0	49.8	38.6	1,952	2,208	2,324	6,484	32	NE.	17
Nov	29.225	29.196	29.207	29.209	29.985	28	28.664	25	1.321	25.5	34.2	29.3	29.7	54.0	4	− 8.0	28	62.0	37.2	20.8	1,995	2,171	1,950	6,116	36	NW.	25
Dec	29.315	29.299	29.312	29.309	29.873	22	28.715	17	1.158	11.1	20.0	15.9	15.7	51.0	12	−22.0	19	73.0	28.8	7.1	2,014	2,167	2,201	6,382	38	NW.	26
Sums	351.369	351.018	351.213	351.201	......	....	......	....	......	405.6	513.1	447.4	455.4	....	....	......	....	....	551.1	352.2	22,793	26,588	24,571	73,952	....	....	....
																					Averages.						
Means	29.281	29.252	29.268	29.267	29.985	*28	28.294	†17	......	33.8	42.8	37.3	38.0	99.0	‡1	−35.0	§22	....	45.9	29.4	1,899.4	2,215.7	2,048.2	......	....	....	....

* November † March. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	0	4	4	0	20	19	28	13	5	1.12	0.33	9, 10	5.1	6.8	3.9	5.1	−7.3	−2.1	−4.9	−4.8	84.6	65.5	75.8	75.3	11	11	9	17	31	31	0	
Feb	2	5	5	1	16	17	25	4	9	0.78	0.23	16	5.2	4.6	2.9	4.2	−0.4	9.2	7.0	5.8	80.0	62.0	75.3	72.4	11	10	7	11	22	28	0	
Mar	7	11	4	1	11	11	21	20	7	0.38	0.20	5, 6	6.1	4.3	3.3	4.6	10.3	15.7	14.7	13.6	77.6	56.0	72.2	68.6	9	16	6	6	15	31	0	
Apr	0	28	5	0	4	6	14	13	11	1.20	0.37	10	5.3	5.9	3.8	5.0	28.3	28.5	29.4	28.7	72.5	56.5	67.7	65.6	10	10	10	8	0	11	0	
May	4	39	2	0	2	1	17	15	13	2.07	1.43	17, 18	6.3	7.2	4.2	5.9	34.4	35.0	34.8	34.7	70.1	63.4	70.0	67.8	4	20	7	12	0	0	0	
June.....	3	31	2	1	7	9	10	6	21	4.14	1.41	1, 2	5.6	6.2	3.2	5.0	49.1	50.2	49.9	49.7	75.6	63.9	78.0	72.5	6	21	3	19	0	0	1	
July	4	24	4	1	3	14	23	10	10	2.48	0.81	20	4.5	6.1	4.1	4.9	53.5	52.8	52.2	52.8	72.2	56.0	68.1	65.4	6	20	5	10	0	0	1	
Aug	8	21	12	0	2	12	10	11	17	0.98	0.38	21, 22	5.2	5.8	4.0	5.0	53.1	55.0	53.4	53.8	80.4	67.1	74.8	74.1	9	14	8	9	0	0	0	
Sept	2	16	0	0	7	6	17	16	26	2.21	1.15	20, 21	4.8	4.1	3.9	4.3	44.5	46.1	45.4	45.3	80.7	63.1	73.7	72.5	11	13	6	9	0	1	0	
Oct	11	20	17	2	4	11	16	11	1	3.19	1.27	7, 8	7.7	7.7	6.1	7.2	34.8	35.8	36.3	35.6	79.3	65.4	74.9	73.2	3	10	18	14	0	5	0	
Nov	8	6	8	1	6	22	22	16	1	1.63	0.90	25	6.5	7.1	4.2	5.9	20.3	24.7	22.8	22.6	80.5	69.0	76.5	75.3	4	19	7	13	9	23	0	
Dec......	8	4	8	1	10	22	19	20	1	3.02	0.91	6, 7	4.6	5.8	4.9	5.3	6.7	10.9	10.2	9.3	82.8	68.0	78.0	76.3	9	14	8	13	20	29	0	
Sums ..	66	209	71	8	92	150	222	155	122	23.20	.....	.....	66.9	71.1	48.5	62.4	327.3	361.8	351.2	346.6	936.3	755.9	885.0	859.0	93	178	94	141	97	159	2	
	Percentages.																								Percentages.							
Means .	6.0	19.1	6.5	0.7	8.4	13.7	20.3	14.2	11.1	......	.....	.....	5.6	5.9	4.0	5.2	27.3	30.1	29.3	28.9	78.0	63.0	73.8	71.6	25.5	48.8	25.8	38.6	26.6	43.6	.6	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6 a. m., 2 p. m., and 10 p. m., local time.

Correction for instrumental error of barometer used: From 6 a. m., January 1, to 10 p. m. December 31, inclusive, +0.005 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.810; February, 0.810; March, 0.790; April, 0.770; May, 0.750; June, 0.730; July, 0.720; August, 0.720; September, 0.740; October, 0.760; November, 0.790; December, 0.820.

N. B. CONGER,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

EASTPORT, ME.

[Latitude, 44° 54′ N.; longitude, 66° 59′ W. Magnetic variation, 18° W. Elevation of barometer above sea-level, 61 feet. Elevation of exposed thermometer above ground, 33 feet. Elevation of rain-gauge above ground, 58 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.078	30.025	30.039	30.047	30.478	20	29.284	21	1.194	12.6	19.7	16.3	16.2	44.0	14	—12.0	6	56.0	24.6	8.4	3,135	2,904	3,063	9,104	43	SE.	31
Feb	30.091	30.015	30.079	30.062	30.674	24	29.270	7	1.404	17.3	23.2	19.3	19.9	43.0	17	— 6.0	10	49.0	28.5	12.4	2,707	2,861	2,792	8,360	33	S.	25
Mar	20.774	29.717	29.739	29.743	30.503	6	28.851	10	1.652	20.1	27.7	22.9	23.6	45.0	15	— 4.0	6	49.0	31.3	15.8	3,671	3,650	3,748	11,069	42	E.	7, 10
Apr	29.901	29.853	29.903	29.886	30.421	14	29.383	6	1.038	35.3	42.8	35.8	38.0	60.0	18	17.0	1	43.0	45.4	31.6	2,060	2,426	2,015	6,501	37	E.	11
May	29.924	29.867	29.890	29.804	30.415	2	29.469	15	.946	45.7	52.3	44.3	47.4	69.0	30	33.0	1	36.0	55.1	40.4	1,904	2,294	2,013	6.211	40	NE.	22
June*	29.923	29.899	20.898	29.907	30.409	2	29.333	12	1.076	53.7	61.2	52.8	57.6	78.6	29	41.4	3	34.2	66.3	48.6	919	1,799	1,525	4,243	32	SE.	21
July	29.859	29.827	29.838	20.841	30.132	27	29.517	23	.615	59.0	65.7	55.9	60.2	76.0	3, 6	47.5	12	28.5	67.8	52.6	1,310	2,059	1,526	4,895	24	SW.	2
Aug	29.906	29.869	29.892	29.889	30.231	15	29.610	3	.621	50.8	69.0	57.7	62.2	81.6	22	48.0	29	33.6	70.9	53.8	840	1,583	1,224	3,647	26	NE.	29
Sept	29.971	29.929	29.963	29.954	30.324	11	29.078	25	1.246	53.1	60.9	51.9	55.3	75.0	19	40.0	30	35.0	63.0	48.3	1,465	1,988	1,503	4,956	32	SE.	25
Oct	30.089	30.048	30.068	30.068	30.543	18	28.950	30	1.593	42.7	48.6	42.7	44.7	63.4	14	29.3	22	34.1	50.3	39.2	2,347	2,577	2,290	7.214	36	S.	29
Nov	29.977	29.951	29.979	29.969	30.585	26	38.995	12	1.590	37.9	41.2	37.4	38.8	57.7	22	11.8	29	45.9	45.0	32.5	2 193	2,755	2,134	7,082	42	SE.	27
Dec	29.943	29.910	29.918	29.924	30.532	23	28.673	28	1.859	22.2	25.4	22.7	23.4	46.6	14	—17.0	23	63.6	31.7	15.1	2,791	3,327	2,998	9,116	39	NW.	3
Sums	359.436	358.910	359.206	359.184	......	....	.....	....	......	461.4	540.7	459.7	487.3	..	..	......	...	....	579.9	398.7	25,342	30,228	26,833	82,398	....	....	....
																					Averages.						
Means	29.953	29.909	29.934	29.932	30.674	†24	28.673	‡28	......	38.4	45.1	38.3	40.6	81.6	§22	—17.0	‡23	....	48.3	33.2	2,111.8	2,518.6	2,236.1	......	....	....	....

* One 3 p. m. observation missed.

† February.

‡ December.

§ August.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	13	7	2	5	5	7	23	30	1	3.20	0.79	21	6.0	6.6	4.5	5.7	6.7	11.2	10.2	9.4	76.7	69.2	76.9	74.8	6	15	10	17	24	31	0	
Feb	6	6	3	4	10	17	18	20	0	3.63	1.78	25	5.9	6.0	3.8	5.2	11.3	13.5	12.8	12.5	76.7	66.4	75.8	73.0	7	16	5	12	19	27	0	
Mar	16	5	6	0	11	12	9	34	0	3.61	1.42	20	5.5	6.1	5.8	5.8	12.3	16.7	16.3	15.1	71.3	63.5	75.3	70.0	6	13	12	17	15	28	0	
Apr	9	8	9	3	23	8	9	19	2	2.25	0.55	5, 6	4.8	6.1	4.4	5.1	27.4	29.2	28.8	28.5	73.3	60.6	76.2	70.0	8	14	8	9	0	14	0	
May	11	15	4	3	33	5	6	13	3	6.60	3.50	23	5.1	5.8	4.3	5.1	39.2	38.5	37.9	38.5	79.5	64.4	80.1	74.7	8	18	5	12	0	0	0	
June[1] ...	5	7	2	3	45	9	4	5	9	5.23	2.62	20, 1	3.7	4.8	1.7	3.4	50.0	50.0	47.9	49.3	82.5	63.4	84.0	76.6	14	13	2	14	0	0	0	
July	10	1	4	1	45	7	4	11	10	9.07	5.28	13, 14	3.4	5.2	3.4	4.0	52.8	54.1	51.7	52.9	80.9	68.5	86.2	78.5	11	16	4	14	0	0	0	
Aug	9	4	2	2	30	15	11	9	11	0.49	0.22	3	2.8	4.3	2.0	3.0	52.6	53.2	50.8	52.2	77.8	58.7	78.4	71.6	17	13	1	7	0	0	0	
Sept	5	6	4	3	24	14	11	12	11	2.49	1.81	24, 25	3.5	3.8	3.4	3.6	46.7	45.8	45.1	45.9	79.8	59.7	78.2	72.4	15	10	5	7	0	0	0	
Oct	21	11	4	2	22	7	9	10	7	8.41	2.95	24, 25	4.1	5.4	3.9	4.5	36.3	36.3	35.8	36.1	78.4	65.0	77.2	73.5	13	11	7	2	0	3	0	
Nov	7	4	5	3	16	14	14	14	13	8.77	1.45	27	6.5	6.7	6.1	6.4	31.8	30.8	30.9	31.2	78.4	67.6	77.4	74.5	4	15	11	9	8	13	0	
Dec	20	7	3	3	12	10	9	25	4	4.43	0.81	27, 28	7.5	7.2	6.7	7.1	15.0	18.2	17.3	16.8	73.4	74.2	79.6	75.7	3	11	17	20	13	26	0	
Sums .	132	81	48	32	276	125	127	202	71	53.18	....	......	58.8	68.0	50.0	58.9	382.1	397.5	385.5	388.4	928.2	781.2	945.3	884.8	112	165	87	140	74	142	0	
	Percentages.																								Percentages.							
Means	12.1	7.4	4.4	2.9	25.2	11.4	11.6	18.4	6.5	.....	....	......	4.9	5.7	4.2	4.9	31.8	38.1	32.1	32.3	77.4	65.1	78.8	73.8	30.8	45.3	23.9	38.4	20.3	38.9	0.0	

[1] One 3 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.40 a. m., 3.40 p. m., and 11.40 p. m. local time.

Correction for instrumental error of barometer used: From 7.40 a. m., January 1, to 11.40 p. m., December 31, inclusive, +0.005 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.070; February, 0.070; March, 0.070; April, 0.070; May, 0.070; June, 0.070; July, 0.060; August, 0.070; September, 0.070; October, 0.070; November, 0.070; December, 0.070.

D. C. MURPHY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

ELLIOTT, FORT, TEX.

[Latitude, 35° 30′ N.; longitude, 100° 21′ W. Magnetic variation, 11° 45′ E. Elevation of barometer above sea-level, 2,650 (B.) feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 2 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	27.281	27.253	27.279	27.272	27.672	22	26.731	12	.941	18.1	40.2	25.8	28.0	66	29	—12.0	20	78.0	41.0	15.4	1,919	2,452	3,810	[1]7,181	44	NW. SW. NW.	18 29 30
Feb	27.389	27.362	27.366	27.372	27.817	17	26.727	15	1.090	22.4	41.2	31.1	31.6	70	14, 15	—10.0	4	80.0	45.4	20.3	1,733	2,250	2,635	[2]6,618	52	N.	16
Mar	27.284	27.274	27.274	27.277	27.749	3	26.915	18	.834	35.6	55.2	43.7	44.8	78	18	17.0	19	61.0	57.3	32.4	2,193	2,945	3,511	8,649	52	N.	18
Apr	27.150	27.127	27.129	27.139	27.633	15	26.456	21	1.177	43.7	68.5	55.3	55.8	90	17	28.0	2	62.0	71.5	42.5	2,722	3,994	4,026	10,742	48	SW. S. S.	18 20 21
May	27.200	27.174	27.147	27.174	27.451	22	26.736	17	.695	51.2	73.8	64.0	63.0	88	8	39.0	3	49.0	77.0	50.7	3,086	4,370	4,272	11,728	44	SW. N.	17, 30
June	27.222	27.198	27.179	27.200	27.389	20	26.900	11	.489	60.5	81.7	72.3	71.5	90	23	42.0	10	48.0	85.3	60.0	2,536	3,049	3,053	8,638	52	S.	16
July	27.288	27.250	27.244	27.264	27.479	18	27.040	13	.439	65.2	86.2	76.8	76.1	96	11	54.0	8	42.0	88.9	64.8	1,895	3,138	3,398	8,431	32	SE. SE. S. S.	4 18 20 21
Aug	27.327	27.291	27.286	27.301	27.461	27	27.131	21	.330	61.6	84.4	74.6	74.5	95	18, 30	58.0	27	37.0	86.8	64.8	1,026	1,847	1,970	4,843	36	NE.	2
Sept.....	27.347	27.326	27.334	27.336	27.603	20	27.086	13	.517	57.1	76.9	64.2	66.1	[3]93	1	40.0	23	53.0	([9])	55.8	1,230	2,417	2,360	6,007	34	N.	22
Oct	27.249	27.232	27.248	27.243	27.695	31	26.876	23	.819	49.3	62.5	53.8	55.2	[3]86	1	27.5	25	58.5	62.3	46.3	2,426	3,175	3,083	8,684	40	SE.	16
Nov	27.307	27.270	27.308	27.295	27.840	12	26.855	25	.985	38.0	58.9	42.5	40.5	77	7, 8, 30	20.0	14	57.0	61.7	33.4	1,750	2,867	2,805	7,420	44	SW.	25
Dec	27.311	27.272	27.339	27.307	27.807	14	26.752	26	1.055	32.5	48.6	35.2	38.8	72	1	6.2	31	63.8	52.2	27.4	2,295	3,246	2,931	8,472	46	N.	26
Sums..	327.366	327.038	327.133	327.179	......	....	......	..	......	538.2	778.1	639.3	651.9	....	......	......	...	.....	.....	513.8	24,811	35,748	36,854	97,418	...	....	.....
																					Averages.						
Means	27.280	27.253	27.261	27.265	27.840	[4]12	26.456	[5]21	......	44.8	64.8	53.3	54.3	96	[6]23 [7]11	—12.0	[8]20	.....	.....	42.8	2,067.6	2,979.0	3,071.2	. ..	...	....	.....

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[1] For 28½ days only. [2] For 23½ days only. [3] Maximum taken from exposed thermometer. [4] November. [5] April. [6] June. [7] July. [8] January. [9] Record incomplete.

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan......	16	6	1	7	19	8	5	22	9	([1])	([1])	3, 4, 5, 20	2.4	3.9	2.5	2.9	5.3	17.3	10.5	11.0	57.1	42.5	52.5	50.7	15	14	2	0	7	31	0	
Feb......	9	17	2	6	26	5	4	11	4	0.53	0.47	13	4.2	5.8	2.8	4.3	9.3	20.0	14.4	14.6	53.9	43.7	49.6	49.1	11	11	6	2	7	20	0	
Mar	21	20	4	7	25	4	2	4	6	0.04	0.03	23	3.6	6.2	2.8	4.2	26.5	31.3	28.4	28.7	69.0	44.4	56.2	56.5	8	20	3	2	0	14	0	
Apr.	14	6	2	10	25	11	1	17	4	0.82	0.08	20, 21	3.6	4.9	2.5	3.7	32.7	43.8	36.1	37.5	65.6	44.8	52.3	54.2	14	15	1	5	0	1	0	
May.....	11	22	0	19	19	12	2	4	4	4.56	3.80	16, 17	3.3	3.4	1.9	2.9	39.8	46.9	45.8	44.2	65.7	41.4	53.5	53.5	17	11	3	4	0	0	0	
June	13	9	2	17	35	2	0	2	10	1.60	0.60	17	3.3	4.4	3.2	3.6	48.4	59.7	58.3	55.5	65.5	49.0	62.8	59.1	14	13	3	7	0	0	8	
July.....	1	9	7	26	38	2	0	0	10	2.67	2.40	6, 7	4.4	5.1	3.1	4.2	53.1	63.3	62.6	59.7	66.1	48.5	62.7	59.1	11	15	5	4	0	0	15	
Aug.....	1	11	2	23	26	2	1	0	27	6.56	1.82	6	4.5	4.2	3.9	4.2	53.0	60.0	57.5	56.8	67.5	47.7	58.9	58.0	13	10	8	12	0	0	11	
Sept.....	11	10	2	18	13	10	1	8	17	4.97	2.12	13, 14	4.3	5.3	3.8	4.5	48.1	52.7	51.2	50.7	72.1	45.5	65.7	61.1	13	10	7	9	0	0	1	
Oct......	14	16	3	17	21	11	3	3	5	5.32	2.62	16, 17	4.8	5.3	4.8	5.0	45.0	45.7	46.0	45.6	85.9	59.7	77.0	74.2	9	14	8	13	0	1	0	
Nov	16	7	0	4	29	15	2	8	9	0.04	0.04	21	2.8	3.1	2.0	2.6	27.9	25.8	30.7	28.1	69.1	32.5	64.1	55.2	18	10	2	1	0	13	0	
Dec ...	19	8	0	8	21	7	4	15	11	0.84	0.44	5	3.3	4.7	2.3	3.4	25.8	25.0	26.1	25.6	77.4	44.9	73.2	65.2	16	13	2	4	2	22	0	
Sums..	146	141	25	162	297	89	25	94	116	28.21	.....	....	44.5	56.3	35.6	45.5	414.9	491.5	467.6	458.0	814.9	544.6	728.5	695.9	159	156	50	63	16	102	35	
	Percentages.																								Percentages.							
Means.	13.3	12.9	2.3	14.8	27.1	8.1	2.3	8.6	10.6	.....	.....	....	3.7	4.7	3.0	3.8	34.6	41.0	39.0	38.2	67.9	45.4	60.7	58.0	43.6	42.7	13.7	17.3	4.4	27.9	9.6	

[1] Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.28 a. m., 1.28 p. m., and 9.28 p. m., local time.

Correction for instrumental error of barometer used: From 5.28 a. m., January 1 to 9.28 p. m., December 31, inclusive, +.001 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.930; February, 2.900; March, 2.880; April, 2.780; May, 2.700; June, 2.670; July, 2.640; August, 2.640; September, 2.690; October, 2.790; November, 2.930; December, 2.960.

J. C. RICKLI,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

EL PASO, TEX.

[Latitude, 31° 47′ N.; longitude, 106° 30′ W. Magnetic variation, 12° E. Elevation of barometer above sea-level, 3,764 (B.) feet. Elevation of exposed thermometer above ground, 21 feet. Elevation of rain-gauge above ground, 34 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	26.342	26.284	26.301	26.309	26.638	8	25.953	19	.685	32.2	52.6	42.7	42.5	73.0	31	7.8	21	65.2	57.8	27.4	1,131	1,276	1,560	3,967	28	W., NW.	16, 18
Feb	26.314	26.270	26.310	26.298	26.729	27	25.837	15	.892	40.8	57.8	49.5	49.2	75.0	9	15.0	18	60.0	61.7	36.2	1,357	1,550	2,062	4,969	32	NW.	15
Mar	26.294	26.237	26.254	26.262	26.558	3	25.981	23	.577	48.9	65.0	55.7	56.5	85.0	27	34.0	7	51.0	70.1	43.3	1,189	1,521	1,740	4,450	24	W.	24, 30
Apr	26.216	26.143	26.189	26.183	26.722	15	25.747	20	.975	49.7	72.5	60.2	60.8	88.0	{12 17 29}	31.0	16	57.0	79.7	44.7	988	1,785	2,401	5,174	36	S., W.	17, 20
May	26.230	26.191	26.193	26.211	26.495	20	26.023	16	.472	60.1	83.1	71.4	71.5	99.0	25, 31	41.0	17	58.0	89.2	53.8	961	1,597	1,989	4,550	32	W., SW.	16, 17
June	66.242	26.194	26.192	26.209	26.416	29	25.930	9	.486	71.1	95.3	81.7	82.7	113.0	24	56.0	3	57.0	102.5	66.1	991	1,123	1,646	3,760	24	NW.	4
July	26.323	26.272	26.278	26.291	26.519	18	26.105	13	.414	71.7	91.5	78.7	80.6	110.0	16	62.0	1	48.0	90.8	67.5	825	1,073	1,458	3,356	28	SE., SW.	7, 21
Aug	26.360	26.317	26.314	26.330	26.511	28	26.138	11	.373	69.8	89.7	78.5	79.3	102.0	18	58.0	30	44.0	96.0	67.3	677	876	1,141	2,694	24	SE.	2
Sept	26.364	26.322	26.328	26.338	26.599	21	26.019	13	.580	61.0	80.6	70.6	70.7	99.0	1	45.0	23	54.0	86.5	58.4	669	1,112	1,184	2,965	24	E.	9
Oct	26.288	26.225	26.253	26.255	26.584	31	25.946	27	.638	51.1	72.2	60.1	61.1	90.0	1	28.8	30	61.2	76.4	49.2	704	1,079	1,161	2,944	20	W.	27, 28
Nov	26.384	26.312	26.335	26.344	26.739	12	25.991	9	.748	39.6	61.4	49.5	50.2	80.1	4	28.2	24	51.9	65.5	37.9	635	1,013	1,088	2,736	20	E.	14
Dec	26.385	26.332	26.368	26.362	26.730	15	26.111	4	.619	36.7	55.2	45.2	45.7	73.6	4	12.5	9	61.1	59.3	34.5	778	1,176	1,151	3,105	28	N.	31
Sums	315.762	315.099	315.815	315.392	......	...	......	...	.....	632.2	876.9	743.8	750.8	.....	.....	.....	.....	.....	944.0	585.8	1,090.8	15,181	18,581	44,670	....	....	.....
																					Averages.						
Means	26.314	26.258	26.276	26.283	26.739	*12	25.747	†20	.....	52.7	73.1	62.0	62.6	113.0	‡24	7.8	§21	....	78.7	48.8	909.0	1,265.1	1,548.4	......	....	....	.....

* November. † April. ‡ June. § January.

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8-hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	2	3	1	7	2	0	25	33	20	.10	.08	5	2.1	3.0	1.1	2.1	21.5	22.8	18.3	20.9	65.9	35.5	40.9	47.4	20	10	1	3	0	22	0	
Feb	2	1	10	4	1	5	17	30	14	.40	.14	25	5.2	4.8	4.3	4.8	27.3	29.0	25.7	27.3	62.4	39.9	44.4	48.9	10	12	6	6	0	6	0	
Mar	2	6	11	3	4	3	28	16	20	2.09	1.32	7	4.3	5.2	2.8	4.1	33.4	32.4	30.8	32.2	59.3	35.1	45.0	46.5	16	9	6	3	0	0	0	
Apr	9	5	6	4	1	10	21	15	19	.10	.10	5	1.8	2.4	0.5	1.6	25.4	17.9	21.7	21.7	42.0	15.0	25.1	27.4	26	3	1	1	0	0	0	
May	5	1	14	9	2	17	20	5	20	.02	.02	16	1.4	1.7	0.9	1.3	34.8	30.1	32.9	32.8	41.0	17.8	27.8	28.7	26	2	3	1	0	0	18	
June	0	5	14	11	3	9	7	20	21	.04	.02	21, 28	1.2	2.0	1.3	1.5	45.5	42.7	38.1	42.1	43.1	18.9	24.5	28.8	24	6	0	2	0	0	30	
July	2	2	17	15	5	1	7	18	26	2.84	1.17	9, 10	2.0	2.9	2.8	2.6	55.3	56.7	56.3	56.1	56.6	31.8	49.2	45.9	18	13	0	8	0	0	30	
Aug	0	13	15	16	2	6	4	11	26	1.34	.58	9	2.5	1.8	2.0	2.1	57.0	56.8	55.8	56.5	64.0	33.7	47.3	48.3	22	8	1	6	0	0	28	
Sept	0	6	19	18	2	2	5	4	34	2.51	2.07	18, 19	3.2	3.0	2.1	2.8	48.9	50.1	50.8	49.9	66.8	37.9	53.2	52.6	18	9	3	6	0	0	14	
Oct	2	2	12	9	1	7	17	16	27	2.03	1.84	2, 3	2.0	2.9	1.6	2.2	41.4	42.5	40.2	41.4	72.2	37.0	51.5	53.6	22	8	1	2	0	1	0	
Nov	0	1	21	5	1	3	14	12	33	.61	.53	11	3.9	2.9	1.5	2.8	31.6	32.3	30.1	31.3	74.2	37.5	52.5	54.7	16	11	3	2	0	4	0	
Dec	2	5	10	6	1	3	19	18	29	.84	.55	11, 12	3.5	4.2	2.1	3.3	28.9	29.7	29.7	29.4	73.2	41.5	58.3	58.3	15	13	3	4	0	8	0	
Sums	26	50	150	107	25	66	184	198	289	12.92	...	......	33.1	36.8	23.0	31.2	451.0	443.0	430.4	441.6	722.7	381.1	519.7	541.1	233	104	28	44	0	41	120	
	Percentages.																								Percentages.							
Means	2.4	4.6	13.7	9.8	2.3	6.0	16.8	18.1	26.4	.....	....	.....	2.8	3.1	1.9	2.6	37.6	36.9	35.9	36.8	60.2	31.8	43.3	45.1	63.8	28.5	7.7	12.1	0	11.2	32.9	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.02 a. m., 1.02 p. m., and 9.02 p. m., local time.
Correction for instrumental error of barometer used: From 5.02 a. m., January 1, to 9.02 p. m.; December 31, inclusive, +0.40 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 3.88; February, 3.88; March, 3.80; April, 3.74; May, 3.64; June, 3.59; July, 3.60; August, 3.60; September, 3.65; October, 3.74; November, 3.85; December, 3.86.

JAMES O'DOWD,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

ERIE, PA.

[Latitude, 42° 7′ N.; longitude, 80° 05′ W. Magnetic variation, 2° W. Elevation of barometer above sea-level, 681 feet. Elevation of exposed thermometer above ground, 82 feet. Elevation of rain-gauge above ground, 59 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.383	29.353	29.370	29.369	29.798	4	28.750	20	1.048	21.9	26.7	23.7	24.1	48	27	−7	22	55	30.9	16.9	2,843	2,704	2,678	8,225	46	W.	21
Feb	29.470	29.460	29.457	29.464	29.914	2	28.998	7	.916	24.5	29.7	27.6	27.3	70	16	6	10	64	35.9	18.0	2,206	2,785	2,515	7,506	42	S.	24
Mar	29.255	29.224	29.250	29.243	29.757	7	28.588	10	1.169	24.7	32.0	29.1	28.6	56	1	2	5	54	36.5	19.6	2,038	2,672	2,370	7,080	31	NW.	7
Apr	29.261	29.240	29.260	29.254	29.521	3	28.801	11	.720	41.9	47.4	43.1	44.1	86	14	18	2	68	52.1	36.9	1,724	2,452	1,971	6,147	34	SE.	14
May	29.243	29.213	29.204	29.220	29.563	6	28.796	14	.767	50.9	57.5	53.4	53.9	84	19	32	6	52	62.7	45.4	2,308	2,717	2,340	7,365	42	NE.	21
June	29.230	29.213	29.211	29.218	29.680	1	28.816	11	.864	65.2	71.3	64.9	67.1	86	18	46	1	40	75.8	60.2	1,487	2,000	1,368	4,855	24	SE.	8
July	29.285	29.261	29.268	29.271	29.499	18	28.961	13	.538	68.0	73.6	68.2	69.9	88	6	52	9	36	77.2	63.4	1,471	2,028	1,572	5,071	32	SW.	2
Aug	29.350	29.327	29.335	29.337	29.569	7	29.028	2	.541	64.5	72.3	65.5	67.4	92	22	50	30	42	75.6	60.7	1,756	2,216	1,576	5,548	24	NE.	29
Sept	29.384	29.340	29.346	29.357	29.765	10	28.755	24	1.010	55.6	63.7	57.2	58.8	84	16	42	10	42	67.5	52.3	1,932	2,165	1,620	5,717	32	W.	25
Oct	29.406	29.381	29.390	29.392	29.942	16	28.546	29	1.396	49.3	56.1	51.0	52.1	82	9	36	17, 22	46	59.4	46.2	1,828	2,410	2,002	6,240	39	W.	30
Nov	29.367	29.332	29.353	29.351	29.840	27	28.812	9	1.028	41.6	46.5	43.3	43.8	68	5	19	17	49	50.2	37.8	3,305	3,253	2,935	9,493	48	NW.	12
Dec	29.334	29.304	29.330	29.323	29.786	22	28.786	27	1.000	31.3	35.2	33.5	33.3	57	8, 13	10	23	47	39.8	26.6	2,683	2,782	3,035	8,500	44	SE.	23
Sums ..	351.974	351.648	351.774	351.799	....	...	......	...	......	539.4	612.0	560.5	570.4	....	....	....	....	....	663.1	484.0	25,581	30,184	25,982	81,747	...	......	....
																					Averages.						
Means .	29.331	29.304	29.314	29.316	29.942	*16	28.546	*29	......	45.0	51.0	46.7	47.5	92	†22	−7	‡22	....	55.3	40.3	2,131.8	2,515.3	2,165.2	......	...	......	....

* October. † August. ‡ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 p. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan......	4	11	9	3	15	24	20	5	2	2.66	0.53	13	9.1	8.7	6.9	8.2	17.3	19.4	18.1	18.3	82.1	73.4	78.7	78.1	0	13	18	22	17	29	0	
Feb......	1	9	3	0	11	14	29	10	7	5.94	3.35	3, 4	7.3	6.7	6.5	6.8	20.1	21.0	21.6	20.9	82.6	69.2	77.8	76.5	4	10	14	21	12	26	0	
Mar.....	5	17	0	2	15	12	16	15	11	1.25	0.52	6	6.1	5.9	4.5	5.5	18.3	20.4	20.4	19.7	76.6	62.7	70.0	69.8	7	14	10	15	11	30	0	
Apr.....	2	27	0	6	18	11	15	6	5	2.94	0.85	27, 28	6.1	5.7	4.7	5.5	34.1	33.7	34.4	34.1	74.7	60.6	72.4	69.2	8	13	9	12	1	6	0	
May.....	4	20	0	7	12	20	19	8	3	6.20	1.32	26	6.4	5.9	6.4	6.2	41.7	43.5	41.7	43.3	72.5	62.5	74.5	69.8	6	12	13	18	0	0	0	
June...	6	6	1	9	20	22	12	10	4	3.73	0.80	6, 7	5.8	5.5	3.9	5.1	57.1	57.8	57.5	57.5	75.7	63.6	77.6	72.3	5	16	9	12	0	0	0	
July.....	3	6	4	1	16	26	21	10	6	3.04	0.72	2, 3	5.9	5.0	4.3	5.1	61.0	61.0	60.6	60.9	78.5	65.9	77.5	74.0	7	19	5	15	0	0	0	
Aug.....	6	12	6	9	14	14	16	14	2	2.44	1.45	28, 29	4.0	3.2	2.8	3.6	55.6	57.3	55.8	56.2	73.4	61.4	71.4	68.7	15	13	3	6	0	0	1	
Sept.....	10	18	9	7	24	7	5	7	3	4.41	1.12	24, 25	6.1	6.3	5.8	6.1	48.4	51.3	49.7	49.8	77.6	65.4	70.8	71.3	8	7	15	15	0	0	0	First frost Sept. 11.
Oct......	10	22	8	9	20	8	8	5	3	4.00	1.06	12, 13	7.0	6.6	6.2	6.6	43.7	46.2	44.5	44.8	81.5	71.0	78.5	77.0	6	8	17	12	0	0	0	
Nov.....	4	2	2	2	35	14	13	18	0	3.47	1.06	21, 22	7.4	6.7	5.8	6.6	33.6	35.8	34.4	34.6	73.8	67.6	72.0	71.1	8	14	13	18	2	8	0	
Dec......	5	5	2	4	25	24	9	19	0	3.74	0.68	7, 8	8.3	7.5	7.4	7.7	26.2	29.2	28.2	27.9	81.3	78.9	81.1	80.4	1	10	20	21	9	21	0	
Sums..	60	155	44	59	225	196	183	127	46	44.81	....	......	80.4	73.7	65.2	73.0	457.1	476.6	469.9	468.0	930.3	803.2	908.3	880.2	70	149	146	187	52	120	1	
	Percentages.																								Percentages.							
Means.	5.5	14.2	4.0	5.4	20.6	17.9	16.7	11.6	4.2	.....	....	......	6.7	6.1	5.4	6.1	38.1	39.7	39.2	39.0	77.5	66.9	75.7	73.4	19.2	40.8	40.0	51.2	14.2	32.9	.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.47 a. m., 2.47 p. m., and 10.47 p. m., local time.

Correction for instrumental error of barometer used: From 6.47 a. m., January 1, to 10.47 p. m., December 31, inclusive, +.009 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.770; February, 0.770; March, 0.770; April, 0.750; May, 0.720; June, 0.720; July, 0.710; August, 0.710; September, 0.710; October, 0.730; November, 0.760; December, 0 770.

C. A. SHAW,
Sergeant, Signal Corps. U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

ESCANABA, MICH.

[Latitude, 45° 48′ N.; longitude, 87° 5′ W. Magnetic variation, 4° E. Elevation of barometer above sea-level, 612 feet. Elevation of exposed thermometer above ground, 38 feet. Elevation of rain-gauge above ground, 25 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.							7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.375	29.341	29.370	29.362	29.924	4	28.588	13	1.336	4.3	15.2	7.6	9.0	32.0	19, 30	—22.0	22	54.0	18.7	—2.5	1,666	2,000	2,158	5,824	34	SE.	12
Feb	29.491	29.460	29.465	29.472	[illegible]	2	28.705	16	1.187	5.8	19.3	12.1	12.4	37.0	16, 21	—24.0	10	61.0	21.5	0.1	1,582	2,002	1,915	5,520	27	NE., NW.	14, 17
Mar	29.341	29.291	29.345	29.322	29.824	4	28.443	17	1.381	10.1	25.7	16.4	17.4	52.0	1	—15.0	19	67.0	31.1	4.6	1,658	2,589	2,404	6,711	38	NW.	18
Apr	29.306	29.270	29.287	29.290	29.634	1	28.718	10	.916	31.1	42.0	34.9	36.2	56.5	16	2.0	1	54.5	45.7	27.8	1,492	2,271	2,068	5,831	32	NW.	24
May	29.285	29.256	29.273	29.271	29.580	13	28.760	19	.820	42.8	49.6	42.8	45.1	70.0	26	27.0	1	43.0	53.9	37.2	1,878	2,736	2,512	7,126	38	N.	21
June	29.230	29.209	29.214	29.218	29.558	1	28.800	18	.758	50.7	64.6	56.8	59.4	82.0	28	42.8	10	39.2	67.2	50.1	1,665	2,506	2,332	6,503	31	N.	26
July	29.276	29.262	29.258	29.265	29.598	19	28.866	12	.732	60.7	69.0	61.6	63.8	80.0	1, 2	45.0	13	35.0	71.7	54.5	1,287	2,129	1,938	5,354	33	N.	7
Aug	29.381	29.362	29.371	29.371	29.651	14	28.860	22	.791	56.9	68.8	60.0	61.9	80.0	18, 25	40.0	14	40.0	71.3	51.5	1,201	2,242	2,043	5,486	31	W.	22
Sept.....	29.423	29.391	29.390	29.404	29.818	9	28.900	24	.918	48.2	59.9	51.9	53.8	73.0	1	26.0	29	47.0	62.2	43.6	1,710	2,512	2,236	6,464	33	N.	7
Oct......	29.450	29.432	29.446	29.443	29.966	15	28.690	29	1.267	40.4	48.1	43.0	43.8	64.5	9	27.8	20	36.7	50.8	36.9	2,173	2,471	2,513	7,137	28	SE. N., NE. NW.	18 19 20
Nov	29.301	29.288	29.297	29.295	29.935	28	28.850	25	1.085	30.8	35.3	32.1	32.6	55.0	5	— 1.5	16	56.5	40.8	24.8	2,279	2,718	2,463	7,460	38	SE.	26
Dec	29.337	29.337	29.349	29.341	29.863	22	28.813	17	1.070	16.8	23.7	19.9	20.1	45.0	7	— 9.0	19	54.0	26.8	13.3	2,479	2,730	2,210	7,419	33	NW.	2
Sums..	352.196	351.905	352.064	352.054	......	....	......	....	......	404.1	521.8	439.1	455.0	..	.....	......	...	..	561.7	341.9	21,076	28,906	26,882	76,864	...	....	.....
																					Averages.						
Means.	29.350	29.325	29.339	29.338	29.966	*15	28.443	†17	......	33.7	43.5	36.6	37.9	82.0	‡28	—24.0	§10	....	46.8	28.5	1,756.3	2,408.8	2,210.2	......	...	....	.....

* October. † March. ‡ June. § February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	10	3	2	9	13	10	21	18	7	1.29	.23	13	5.2	5.7	5.4	5.4	1.7	8.4	1.9	4.0	81.7	74.3	75.5	77.2	9	10	12	17	29	31	0	
Feb	10	5	1	5	15	12	18	12	6	1.27	.42	16	5.7	6.0	5.2	5.6	1.1	9.2	5.8	5.4	78.0	65.0	76.0	73.0	7	10	11	10	23	28	0	
Mar	29	2	1	7	20	2	4	20	8	.33	.16	5, 6	5.7	5.7	3.3	4.9	4.5	12.6	8.3	8.5	77.9	57.7	70.6	68.7	10	14	7	11	20	31	0	
Apr	23	5	13	6	17	4	3	9	10	1.69	.78	14, 15	5.2	5.7	5.2	5.4	23.8	26.8	26.1	25.6	74.5	56.1	70.3	67.0	7	14	9	10	0	22	0	
May	26	4	5	14	19	0	7	9	9	1.96	.57	19	5.8	6.3	5.1	5.7	33.6	34.0	33.9	33.8	71.5	58.0	71.6	67.0	4	19	8	14	0	5	0	
June	24	1	1	12	28	3	7	7	7	5.43	1.54	17, 18	4.2	5.3	5.6	5.0	50.0	50.9	51.1	50.7	79.0	63.2	82.2	74.8	9	13	8	17	0	0	0	
July	13	6	0	9	36	1	11	7	10	4.74	1.69	6, 7	5.7	5.8	3.6	5.0	55.1	56.9	55.6	55.9	82.1	66.8	80.6	76.5	7	17	7	16	0	0	0	
Aug	21	1	2	10	22	10	7	10	10	1.17	.58	11, 12	2.9	4.3	2.5	3.2	51.8	53.8	53.1	52.9	83.7	60.8	78.8	74.4	16	13	2	9	0	0	0	
Sept	23	3	4	11	20	8	8	10	8	2.02	.85	6, 7	4.4	4.7	3.4	4.2	41.5	45.8	46.6	45.6	87.9	61.6	82.5	77.3	12	12	6	12	0	4	0	
Oct	25	8	6	12	17	6	10	6	8	3.93	1.25	8	6.3	6.5	5.9	6.2	35.7	33.6	35.9	35.1	84.3	59.7	76.6	73.5	5	13	13	15	0	9	0	
Nov	5	1	2	3	24	16	17	20	2	3.62	1.82	5	7.3	7.2	5.8	6.8	25.0	26.2	24.7	25.3	79.7	70.1	74.9	74.9	1	16	13	18	5	20	0	
Dec	15	0	3	2	19	17	14	22	1	1.67	.78	6, 7	6.5	6.5	5.0	6.0	12.1	15.6	14.7	14.1	61.1	70.9	79.5	77.2	7	10	14	9	19	29	0	
Sums ..	224	39	40	100	250	89	127	150	70	30.02	....	......	64.9	69.7	56.0	63.4	338.9	373.9	357.7	356.9	961.4	764.2	919.1	881.5	94	161	110	158	96	179	0	
	Percentages.																								Percentages.							
Means .	20.5	3.6	3.7	9.1	22.8	8.1	11.6	13.7	6.9	.....	....	......	5.4	5.8	4.7	5.3	28.2	31.2	29.8	29.7	80.1	63.7	76.6	73.5	25.8	44.1	30.1	43.3	26.3	49.0	0.0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.20 a. m., 2.20 p. m., and 10.20 p. m., local time.
Correction for instrumental error of barometer used: From 6.20 a. m, January 1, to 10.20 p. m., December 31, inclusive, +.012 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.720; February, 0.720; March, 0.710; April, 0.690; May, 0.660; June, 0.650; July, 0.640; August, 0.610; September, 0.600; October, 0.670; November, 0.700; December, 0.720.

L. M. PINDELL,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

FORT SMITH, ARK.

[Latitude, 35° 22′ N.; longitude, 94° 24′ W. Magnetic variation, 9° E. Elevation of barometer above sea-level, 449 feet. Elevation of exposed thermometer above ground, 18 feet. Elevation of rain-gauge above ground, 30 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In.		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles.	Miles.			
Jan.*	29.700	29.606	29.694	29.690	30.206	22	29.236	12	.970	28.8	38.8	32.9	33.5	68.5	26	2.5	21	66.0	45.4	25.2	1,136	1,756	1,339	4,231	28	W.	10, 13
Feb	29.796	29.758	29.786	29.780	30.303	18	29.146	15	1.157	33.8	45.2	40.1	39.7	78.4	14	8.0	4	70.4	51.6	30.7	1,325	1,494	1,596	4,415	32	NW.	16
Mar	29.611	29.557	29.501	29.580	30.141	3	29.172	18	.969	40.9	58.2	48.8	49.3	82.5	18	28.0	16	54.5	62.9	39.5	1,155	1,354	1,728	4,237	26	N.	6
Apr	29.455	29.407	29.431	29.431	29.857	25	28.840	22	1.017	53.0	70.7	60.0	61.2	88.5	12	37.2	2	51.3	74.9	51.2	1,041	1,774	1,822	4,637	24	S., NW., N.	14, 15
May	29.500	29.472	29.474	29.482	29.803	5	29.121	29	.682	60.5	77.1	65.6	67.7	93.3	2	45.0	22	48.3	81.5	58.0	1,065	1,883	1,547	4,495	36	E.	29
June	29.517	29.477	29.485	29.493	29.686	1	29.147	9	.539	69.8	85.7	74.5	76.7	99.5	22	58.0	1, 11	41.5	90.2	67.7	623	1,281	1,015	2,919	36	N.	23
July	29.589	29.554	29.550	29.567	29.829	18	29.310	12	.519	73.0	87.9	78.0	79.6	99.9	20	64.0	10	35.9	94.4	71.1	663	1,068	909	2,640	28	N.	14
Aug	29.601	29.566	29.575	29.581	29.760	6	29.419	11	.341	69.5	87.0	75.5	77.3	100.3	22	60.8	26	39.5	92.4	68.7	495	1,051	855	2,401	32	W.	2
Sept	29.615	29.552	29.578	29.582	29.762	5	29.367	13	.395	60.4	82.4	68.3	70.4	98.1	2	39.6	23	58.5	86.8	59.6	504	1,112	1,093	2,709	20	N.	20, 21
Oct	29.571	29.534	29.563	29.556	29.989	31	29.106	28	.883	58.9	70.9	61.7	63.8	94.0	7	39.3	30	54.7	74.9	56.9	1,037	1,478	1,284	3,799	20	NW.	29
Nov	29.607	29.637	29.660	29.665	30.192	12	29.128	21	1.064	45.9	60.8	51.7	52.8	78.4	5, 8	25.0	15	53.4	66.2	43.4	1,135	1,398	1,219	3,752	32	W.	21
Dec	29.685	29.638	29.683	29.660	30.163	15	29.108	26	1.055	38.2	51.3	42.7	44.1	78.1	1	19.6	27	58.5	55.7	35.4	1,247	1,566	1,560	4,373	26	NW.	26
Sums	355.346	354.818	355.078	355.082	......	...	......	...	......	632.7	816.0	699.8	716.1	......	...	......	......	....	876.9	607.4	11,516	17,215	15,937	44,668	..	....	.....
																					Averages.						
Means	29.642	29.568	29.590	29.590	30.303	†18	28.840	‡22	......	52.7	68.0	58.3	59.7	100.3	§22	2.5	‖21	....	73.1	50.6	959.7	1,434.6	1,328.1	......	....	....	.....

*One 7 a. m. and one 11 p. m. observation missed. † February. ‡ April. § August. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington-time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan.[1]	8	3	27	3	1	4	15	7	23	2. 71	1. 35	27	6. 0	6. 3	4. 9	5. 7	23. 8	26. 5	25. 6	25. 3	81. 7	63. 8	76. 0	73. 8	9	8	12	9	2	19	0	One 7 a. m. and one 11 p. m. observation missed.
Feb	11	4	30	3	6	3	8	7	12	5. 62	2. 49	23, 24	6. 1	6. 7	6. 8	6. 5	29. 2	29. [illegible]	32. 2	30. 3	82. 9	59. 8	75. 1	72. 6	6	7	15	9	3	14	0	
Mar	23	3	22	2	5	4	9	5	20	1. 20	. 42	19	5. 5	6. 1	4. 6	5. 4	33. 7	32. 5	35. 5	33. 9	76. 2	41. 9	62. 1	60. 1	9	12	10	4	0	4	0	
Apr	12	2	19	12	7	2	11	4	21	4. 33	1. 63	14	4. 8	4. 9	3. 2	4. 3	45. 9	44. 5	47. 6	46. 0	77. 6	43. 4	65. 6	62. 2	14	9	7	10	0	0	0	Frost 2d and 16th.
May	10	1	27	4	14	2	9	6	20	5. 65	1. 50	19	4. 0	4. 0	3. 2	3. 7	53. 8	55. 1	57. 4	55. 4	78. 5	48. 8	75. 6	67. 6	14	10	7	8	0	0	2	
June	8	2	12	2	15	4	8	3	36	4. 12	1. 31	9	4. 5	4. 5	2. 7	3. 9	65. 9	67. 0	68. 7	67. 2	87. 7	54. 0	81. 7	74. 5	11	16	3	9	0	0	16	
July	4	1	27	8	13	9	9	3	19	4. 24	2. 22	14, 15	4. 4	5. 0	3. 5	4. 3	69. 0	69. 4	71. 2	69. 9	87. 4	55. 6	80. 1	74. 4	12	14	5	9	0	0	26	
Aug	3	1	31	5	7	1	10	2	33	1. 32	. 54	2	3. 9	4. 2	3. 0	3. 7	65. 9	64. 6	68. 1	66. 2	88. 5	49. 4	78. 4	72. 1	17	8	6	5	0	0	23	
Sept	10	3	23	0	4	4	11	5	30	2. 34	2. 08	30	2. 6	3. 5	3. 0	3. 0	54. 8	52. 8	57. 4	55. 0	82. 6	39. 1	69. 7	63. 8	17	9	4	2	0	0	12	First frost 23d.
Oct	6	2	31	3	10	3	2	6	39	7. 29	2. 25	17, 18	6. 8	6. 2	4. 6	5. 9	55. 4	55. 4	56. 8	55. 9	88. 3	62. 0	84. 4	78. 2	7	12	12	14	0	0	2	
Nov	11	4	35	4	11	3	4	1	17	4. 74	2. 56	9, 10	4. 6	4. 6	4. 1	4. 4	38. 8	38. 3	43. 0	40. 0	77. 3	47. 0	73. 0	65. 8	13	8	9	8	0	5	0	
Dec	17	0	29	4	11	3	8	8	13	3. 09	2. 30	5, 6	5. 0	5. 8	4. 6	5. 1	31. 3	32. 6	33. 8	32. 6	77. 3	52. 4	72. 0	67. 2	10	10	11	7	0	12	0	
Sums	123	26	313	50	104	42	104	57	274	46. 65	.....	.....	58. 2	61. 8	48. 2	55. 9	567. 5	568. 3	597. 3	577. 7	986. 0	617. 2	893. 7	832. 3	139	123	101	94	5	54	81	
	Percentages.																								Percentages.							
Means	11. 2	2. 5	28. 6	4. 6	9. 5	3. 8	9. 5	5. 2	25. 1	.....	...	.....	4. 8	5. 2	4. 0	4. 7	47. 3	47. 4	49. 8	48. 2	82. 2	51. 4	74. 5	69. 4	38. 3	33. 9	27. 8	25. 8	1. 4	14. 8	22. 2	

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[1] One 7 a. m. and one 11 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.50 a. m., 1.50 p. m., and 9.50 p. m., local time.
Correction for instrumental error of barometer used: From 7.50 a. m., January 1, to 11.50 p. m., December 31, inclusive, +.001 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.500; February, 0.500; March, 0.490; April, 0.480; May, 0.470; June, 0.460; July, 0.460; August, 0.460; September, 0.470; October, 0.480; November, 0.490; December, 0.500.

J. B. CAMPBELL,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

GALVESTON, TEX.

[Latitude, 29° 18′ N.; longitude, 94° 47′ W. Magnetic variation, 8° 15′ E. Elevation of barometer above sea-level, 40 feet. Elevation of exposed thermometer above ground, 37 feet. Elevation of rain-gauge above ground, 51 feet.]

Month.	Barometer (corrected for temerature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles*	*Miles.*	*Miles.*			
Jan	30.120	30.099	30.126	30.115	30.639	22	29.880	27	.759	48.9	52.8	51.4	51.0	69	27	20.0	21	49.0	58.6	45.0	3,495	3,678	3,694	10,867	48	N.	8
Feb	30.163	30.155	30.177	30.165	30.649	27	29.694	23	.955	52.3	58.5	55.0	55.3	74	16	30.0	5	44.0	61.3	49.5	3,796	3,684	3,519	10,999	59	N.	17
Mar	30.023	30.010	30.014	30.016	30.468	1	29.562	24	.906	59.8	65.3	62.2	62.4	78	29	42.0	20	36.0	68.5	57.4	2,632	2,808	2,710	8,150	61	N.	13
Apr	29.901	29.893	29.889	29.894	30.392	16	29.439	22	.953	67.8	74.2	69.9	70.6	84	22	59.0	9	25.0	76.0	66.6	2,836	2,781	2,616	8,233	29	SE.	21
May	29.953	29.958	29.948	29.953	30.173	6	29.767	29	.406	72.8	79.4	74.6	75.6	85	15, 19, 29, 30	61.0	21	24.0	81.3	71.2	2,920	3,159	3,119	9,198	43	N.	4
June	29.956	29.953	29.934	29.948	30.074	3	29.695	9	.379	80.5	86.7	81.6	82.9	91	11, 14, 15, 17, 21, 22, 23, 24	68.5	3	22.5	88.4	78.9	1,805	2,055	2,139	5,999	43	N.	3
July	30.051	30.045	30.027	30.041	30.221	18	29.905	14	.316	80.9	88.5	82.2	83.9	94	19	74.0	5	20.0	89.8	79.5	1,766	2,026	2,307	6,099	36	NE.	28, 29
Aug	30.007	29.986	29.968	29.987	30.127	15	29.810	11	.317	81.1	89.4	83.3	84.6	95	29	75.0	8, 17	20.0	90.9	79.7	1,510	1,859	2,073	5,442	37	NE.	16
Sept	30.001	29.986	29.973	29.987	30.177	26	29.828	13	.349	76.3	83.1	78.6	79.3	90	1, 2	63.5	23	26.5	84.8	74.8	1,763	2,071	2,004	5,838	32	NE.	21
Oct	29.978	29.970	29.965	29.971	30.216	31	29.708	28	.508	74.5	80.5	75.7	76.9	87	2, 3, 4, 8	54.5	25	32.5	82.0	72.7	2,487	2,650	2,422	7,559	26	N.	25
Nov	30.079	30.073	30.075	30.076	30.543	16	29.750	10	.803	62.6	68.2	64.3	65.0	81	9, 10	43.0	17	38.0	70.5	59.9	2,330	2,420	2,225	6,975	32	N.	26
Dec	30.088	30.084	30.094	30.089	30.604	15	29.795	18	.809	57.5	63.5	50.6	60.2	75	4	41.0	16	34.0	66.6	55.3	2,593	2,662	2,599	7,854	32	N.	14
Sums..	360.320	360.212	360.190	360.242	......	...	......	....	....	815.0	890.1	838.4	847.7	....	....	....	....	......	918.7	790.5	29,933	31,853	31,427	93,213	....	....	....
																					Averages.						
Means.	30.027	30.018	30.016	30.020	30.649	*27	29.439	†22	....	67.9	74.2	69.9	70.7	95	‡29	20.0	§21	......	76.6	65.9	2,494	2,654	2,619	......	....	....	....

* February. † April. ‡ August. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	29	9	13	21	6	8	1	5	1	6.46	3.48	5, 6	4.0	5.7	3.1	4.3	45.0	46.6	46.3	46.0	86.6	80.9	83.5	83.7	15	9	7	13	1	4	0	
Feb	19	15	10	24	14	0	1	1	0	1.15	.43	16, 17	5.8	7.6	4.5	6.0	49.0	52.0	50.2	50.4	88.9	80.7	84.9	84.8	10	8	10	16	0	2	0	
Mar	14	10	11	24	23	5	2	4	0	4.93	1.55	24	6.8	7.0	3.4	5.7	55.2	56.8	57.3	56.4	85.2	74.7	84.8	81.4	7	15	9	9	0	0	0	
Apr	9	15	8	21	20	12	3	1	1	1.26	.82	8	7.3	5.5	6.3	6.4	61.2	62.0	62.8	62.0	80.3	68.0	79.5	75.9	9	3	18	10	0	0	0	
May	8	10	5	35	30	1	1	2	1	6.01	1.91	26	6.9	5.5	5.7	6.0	66.5	66.6	67.3	66.8	81.5	66.2	78.9	75.5	4	17	10	6	0	0	0	
June	2	8	2	26	45	9	1	0	2	1.04	.28	3	7.2	5.4	5.0	5.9	73.6	73.8	73.3	73.6	79.8	65.8	76.4	74.0	1	22	7	10	0	0	8	
July	0	2	1	16	47	21	2	2	2	1.38	1.16	5	6.1	4.7	3.4	4.7	73.9	73.2	73.3	73.5	79.4	61.1	74.8	71.8	8	20	3	5	0	0	10	
Aug	6	6	10	16	34	13	3	5	0	1.09	.48	7	4.6	3.3	3.4	3.8	73.5	72.6	73.0	73.0	78.0	58.6	71.2	69.3	10	19	2	8	0	0	19	
Sept	9	14	13	29	17	3	2	0	8	3.22	1.79	20, 21	5.2	4.8	3.5	4.5	67.9	68.1	68.7	68.2	76.0	61.9	72.2	70.0	10	11	9	7	0	0	0	
Oct	5	12	18	24	29	7	1	1	1	6.78	4.17	24	6.4	5.2	4.4	5.3	68.7	70.0	68.6	69.1	82.7	70.8	79.3	77.0	6	17	8	12	0	0	0	
Nov	9	22	16	17	22	2	0	0	2	4.88	1.05	22, 23	6.2	5.2	5.1	5.5	56.5	56.8	55.4	56.2	80.8	68.6	74.4	74.6	6	16	8	14	0	0	0	
Dec	22	9	17	12	19	6	4	4	0	2.91	2.07	6, 7	5.1	6.7	3.9	5.2	51.0	54.7	52.2	52.6	79.8	74.5	78.3	77.5	10	12	9	10	0	0	0	
Sums	132	127	119	265	306	87	21	25	18	41.11	......	.....	71.6	66.6	51.7	63.3	742.0	753.2	748.4	747.8	979.0	831.8	937.7	916.1	96	169	100	120	1	6	37	
	Percentages.																								Percentages.							
Means	12.1	11.6	10.9	24.2	28.0	7.9	1.9	2.3	1.2	......	......	......	6.0	5.6	4.3	5.3	61.8	62.8	62.4	62.3	81.6	69.3	78.1	76.3	26.3	46.3	27.4	32.9	.3	1.6	10.1	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.49 a. m., 1.49 p. m., and 9.49 p. m., local time.

Correction for instrumental error of barometer used: From 5.49 a. m., January 1, to 9.49 p. m., December 31, inclusive, +.008 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.040; February, 0.040; March, 0.040; April, 0.040; May, 0.040; June, 0.040; July, 0.040; August, 0.040; September, 0.040; October, 0.040; November, 0.040; December, 0.040.

E. O'C. MACINERNEY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

GRAND HAVEN, MICH.

[Latitude, 43° 5′ N.; longitude, 86° 19′ W. Magnetic variation, 4° E. Elevation of barometer above sea-level, 620 feet. Elevation of exposed thermometer above ground, 23 feet. Elevation of rain-gauge above ground, 74 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.			Monthly mean.	Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.			Total.	Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.		Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.		Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan......	29.395	29.378	29.391	29.388	29.857	4	28.767	30	1.090	18.6	22.7	19.9	20.4	40.0	30	—10.0	26	50.0	26.7	14.7	2,944	2,958	3,304	9,206	44	SW.	13
Feb	29.519	29.512	29.496	29.500	29.962	18	28.925	24	1.037	20.6	26.3	23.9	23.6	54.0	16	— 2.0	10	56.0	30.1	15.5	3,017	3,055	2,838	8,910	38	W.	8
Mar	29.341	29.317	29.324	29.327	29.817	7	28.705	10	1.112	23.2	31.4	27.2	27.3	46.5	18	1.0	19	45.5	35.9	18.3	2,122	2,935	2,850	7,907	40	NW.	6
Apr	29.287	29.274	29.258	29.273	29.589	2	28.712	10	.877	40.5	48.8	44.4	44.4	80.0	14	21.5	2	58.5	52.6	37.2	2,466	3,206	2,699	8,371	30	S., SW.	{ 9 11
May.....	29.271	29.247	29.252	29.257	29.622	6	28.913	14	.709	48.0	54.9	48.9	50.6	76.0	18	34.0	1	42.0	58.1	42.8	2,602	3,181	2,776	8,559	37	S.	19
June	29.246	29.241	29.218	29.236	29.653	1	28.876	10	.777	60.4	65.0	61.0	62.1	78.5	23	41.0	1	37.5	68.8	53.8	2,181	2,578	2,156	6,915	34	S.	12
July.....	29.310	29.314	29.291	29.305	29.605	18	28.917	12	.688	64.8	71.0	66.5	67.4	81.0	3	52.5	9	28.5	72.9	60.9	2,180	2,272	2,150	[1]6,602	[2]36	N.	2
Aug.....	29.410	29.392	29.378	29.393	29.647	6	29.075	19	.572	60.2	69.9	63.6	64.6	81.0	19	45.2	27	35.8	71.0	57.0	1,866	2,594	2,409	6,869	31	SW.	22
Sept.....	29.417	29.378	29.382	29.392	29.802	9	28.880	24	.922	53.7	62.6	54.6	57.0	78.5	15	37.3	9	41.2	64.3	49.4	2,062	2,723	2,349	7,134	32	SW.	4
Oct......	29.425	29.412	29.416	29.418	29.943	16	28.721	29	1.222	43.8	52.0	46.9	47.6	73.0	8	29.3	21	43.7	53.3	41.2	2,492	2,937	2,779	8,208	40	W.	31
Nov	29.341	29.352	29.328	29.340	29.868	28	28.782	21	1.086	39.0	42.9	40.6	40.8	60.7	26	15.2	16	45.5	47.9	33.9	3,814	4,131	3,831	11,776	52	W.	11
Dec.	29.343	29.353	29.363	29.353	29.840	22	28.771	17	1.069	28.8	33.0	30.0	30.6	55.0	7	10.0	23	45.0	36.9	23.7	3,252	3,434	2,917	9,603	48	NW.	2
Sums..	352.305	352.173	352.097	352.191	......	..	......	....	.....	501.6	580.0	527.5	536.4	....	......	......	....	....	618.5	448.4	30,998	36,004	27,058	100,060	....	....	....
																					Averages.						
Means.	29.359	29.348	29.341	29.349	29.962	[3]18	28.705	[4]10	.....	41.8	48.3	44.0	44.7	81.0	[5]3, [6]19	—10.0	[7]26	....	51.5	37.4	2,583.2	3,000.3	2,754.8	....	....	....	....

[1] 25 days only.
[2] 26 days only.
[3] February.
[4] March.
[5] July.
[6] August.
[7] January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 3 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*										°	°	°	°								
Jan	1	16	8	11	8	18	15	8	8	2.44	.52	17	9.7	8.6	8.6	9.0	14.5	17.3	15.9	15.9	83.8	79.2	84.2	82.4	0	5	26	24	23	31	0	
Feb	8	9	9	2	10	15	26	6	4	4.30	2.23	16	7.6	7.4	6.3	7.1	16.1	21.0	19.2	18.8	82.2	79.6	81.8	81.2	2	13	13	17	14	26	0	
Mar	13	4	7	8	13	10	14	19	10	.57	.18	18	6.6	6.6	4.7	6.0	18.7	23.1	21.1	21.0	82.5	72.4	77.8	77.6	6	15	10	11	7	20	0	
Apr	10	21	6	5	17	9	11	6	5	1.49	.41	6, 7	5.9	5.5	5.4	5.6	32.3	31.9	31.5	31.9	73.2	55.6	62.6	63.8	6	17	7	14	0	7	0	
May	8	17	9	3	17	11	14	9	5	6.02	1.51	9, 10	6.0	6.4	5.7	6.0	40.1	40.2	40.9	40.4	75.4	60.8	75.2	70.5	7	11	13	24	0	0	0	
June......	5	5	2	8	22	15	20	8	5	9.24	1.47	10, 11	6.7	6.6	5.7	6.3	54.2	54.4	55.0	54.5	80.9	70.8	81.4	77.7	4	15	11	20	0	0	0	
July	6	7	5	4	27	19	15	7	3	7.96	2.32	20, 21	5.8	5.5	4.5	5.3	58.9	61.1	60.5	60.2	81.9	71.3	81.5	78.2	7	18	6	16	0	0	0	
Aug	10	16	6	8	16	14	10	15	3	.46	.17	12, 27, 28	3.0	3.0	3.1	3.0	56.0	58.3	57.1	57.1	86.3	67.8	79.6	77.9	15	15	1	6	0	0	0	
Sept	9	22	17	2	10	8	13	9	0	2.29	.94	20. 21	5.7	4.1	4.2	4.7	48.8	50.9	48.9	49.5	84.0	66.6	80.4	77.0	10	13	7	11	0	0	0	1st frost Sept. 9th.
Oct	6	29	19	11	9	2	10	6	1	3.67	.85	13, 14	6.8	6.6	6.9	6.8	39.5	40.7	39.9	40.0	85.0	67.3	77.6	76.6	4	11	16	14	0	2	0	
Nov	3	3	7	5	15	20	12	19	0	4.86	1.37	21	6.9	6.5	5.7	6.4	33.6	34.4	35.0	34.3	81.9	72.1	80.2	78.1	4	15	11	15	2	12	0	
Dec	10	10	8	6	16	14	11	11	7	1.54	.25	6, 7	8.2	8.0	6.8	7.7	23.7	26.9	24.7	25.1	81.1	78.2	80.5	79.9	3	10	18	17	8	23	0	
Sums ..	90	159	103	63	180	155	171	123	51	44.84	....	....	78.9	74.8	67.6	73.9	436.4	460.2	449.7	448.7	978.2	841.7	942.8	920.9	68	158	139	189	54	130	0	
	Percentages.																								Percentages.							
Means .	8.2	14.5	9.4	5.7	16.4	14.2	15.6	11.2	4.7	.....	....	....	6.6	6.2	5.6	6.1	36.4	38.4	37.5	37.4	81.5	70.1	78.6	76.7	18.6	43.3	38.1	51.8	14.8	35.6	.0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.23 a. m., 2.23 p. m., and 10.23 p. m., local time.

Correction for instrumental error of barometer used: From 6.23 a. m., January 1, to 10.23 p. m., December 31, inclusive, +.002 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.710; February, 0.710; March, 0.700; April, 0.690; May, 0.660; June, 0.650; July, 0.650; August, 0.650; September, 0.660; October, 0.670; November, 0.700; December, 0.710.

JOSEPH E. MUELLER,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

GRANT, FORT, ARIZ.

[Latitude, 32° 39′ N.; longitude, 109° 57′ W. Magnetic variation, 13° E. Elevation of barometer above sea-level, 4,860 (B) feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	25.280	25.234	25.252	25.255	25.521	23	24.894	19	.627	31.5	48.9	41.0	40.5	64.6	31	10.0	21	54.6	51.6	30.1	1,410	1,092	1,649	4,151	29	NW.	19
Feb	25.244	25.201	25.238	25.226	25.540	17	24.917	15	.623	35.4	51.4	44.8	43.9	65.8	1	17.0	18	48.8	54.0	33.7	1,992	2,134	2,269	6,395	48	SE.	19
Mar	23.216	25.187	25.192	25.198	25.391	1	24.984	23	.407	43.5	60.9	52.2	52.2	75.9	27	37.0	25	38.9	63.8	42.9	1,359	1,438	2,168	4,965	28	NW.	18
Apr	25.162	25.126	25.136	25.141	25.528	15	24.889	20	.639	44.9	66.4	55.9	55.7	78.4	19	32.0	14	46.4	60.8	43.5	1,618	1,917	3,168	6,733	36	W.	20
May	25.215	25.175	25.165	25.185	25.870	20	25.064	7, 16	.806	54.1	74.9	64.6	64.5	89.9	27	39.0	8	50.9	78.1	52.5	1,650	1,685	2,618	5,953	32	SW.	7
June*	25.226	25.195	25.173	25.198	25.304	2	25.056	9	.248	66.5	87.3	79.3	77.7	101.5	25	54.0	2	47.5	91.7	64.7	1,519	1,246	2,530	5,295	29	SE.	28
July	......	......	......	......	......	...	......	...	......	66.8	82.8	75.6	75.1	95.4	17	61.3	29	34.1	87.4	65.6	1,378	1,325	2,053	4,756	32	E.	8
Aug.†	25.357	25.323	25.322	25.334	25.515	28	25.255	31	.260	66.1	81.5	73.8	73.8	91.2	31	61.2	6	30.0	85.5	64.9	1,270	987	1,468	3,725	20	E., NE.	15 19
Sept	25.274	25.262	25.265	25.267	25.426	20	25.078	13	.348	63.5	79.2	72.4	71.7	91.7	1	51.0	22	40.7	82.9	61.8	1,711	1,945	2,226	5,882	30	SE.	21
Oct	25.206	25.182	25.199	25.196	25.385	31	24.972	27	.413	50.1	66.3	58.1	58.2	83.3	2	36.4	29	46.9	69.9	48.7	1,110	1,204	1,733	4,047	22	W.	23
Nov	25.256	25.232	25.250	25.247	25.491	12	24.996	9	.495	41.8	57.9	50.8	50.0	67.8	2	28.8	21	39.0	61.1	40.4	1,572	1,387	1,900	4,859	38	SE.	29
Dec	25.271	25.242	25.274	25.262	25.498	8	25.038	4	.460	38.5	52.0	44.7	45.1	65.0	1	23.6	31	41.4	55.0	37.2	1,882	1,952	2,263	6,097	34	SE.	11
Sums	......	......	......	......	......	...	......	...	......	602.7	809.5	712.7	708.4	......	...	......	...	....	850.3	586.0	18,501	18,312	26,045	62,858	....	......	...
																					Averages.						
Means	......	......	......	......	......	...	......	...	......	50.2	67.5	59.4	59.0	101.5	‡25	10.0	§21	....	70.9	48.8	1,541.8	1,526.0	2,170.4	......	....	......	...

(B) Elevation determined by barometer.

* Eleven 7 a. m., twelve 3 p. m., twelve 11 p. m. observations of barometer missed.

† Twenty-five 7 a. m., 3 p. m., and 11 p. m. observations of barometer missed.

‡ June.

§ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from— North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. Total amount.	Any 3 consecutive 8 hourly measurements. Largest amount.	Date.	Washington time. Cloudiness (in tenths). 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	Remarks.
1883.										*In.*	*In.*																					
Jan	8	12	11	13	3	8	13	21	4	1.21	0.98	3	3.1	3.7	3.0	3.3	23.1	27.3	24.5	25.0	71.5	46.7	53.4	57.2	17	9	5	8	0	18	0	
Feb	5	10	23	6	7	4	10	14	5	1.40	0.59	20, 21	5.4	6.8	4.8	5.7	23.2	31.3	29.0	27.8	61.9	50.9	56.9	56.6	5	13	10	11	0	10	0	
Mar	14	14	9	8	14	4	9	15	6	1.27	0.66	8	4.6	6.6	5.2	5.5	29.8	37.1	35.5	34.1	60.0	43.9	55.5	53.1	7	14	10	9	0	0	0	
Apr	7	4	13	3	5	7	26	24	1	0.03	0.03	6	1.2	2.7	1.0	1.6	23.2	23.8	21.6	22.9	43.1	21.6	29.6	31.4	21	9	0	1	0	0	0	
May	14	5	10	10	8	13	9	20	4	1.16	1.07	16, 17	1.3	3.0	1.4	1.9	28.4	30.5	28.2	29.0	38.9	22.3	27.7	29.6	24	4	3	4	0	0	0	
June	18	2	10	7	7	11	8	25	2	1.26	1.26	29	0.7	2.4	2.1	1.7	38.8	42.5	41.8	41.0	38.3	21.8	28.7	29.6	22	8	0	1	0	0	18	
July	21	7	20	12	4	5	2	16	6	2.30	0.62	25, 26, 31	3.7	5.3	5.0	4.7	53.4	54.9	55.3	54.5	63.2	39.9	51.7	51.6	10	16	5	14	0	0	10	
Aug	15	20	12	9	6	6	8	16	1	3.07	0.95	5, 6	3.9	3.5	4.4	3.9	57.5	55.6	55.9	56.8	74.8	42.6	56.0	57.8	13	15	3	16	0	0	2	
Sept	11	10	12	26	6	5	10	10	0	0.42	0.26	9	1.4	2.3	2.2	2.0	41.5	41.8	42.6	42.0	47.2	28.4	36.4	37.3	21	8	1	5	0	0	2	
Oct	15	15	7	14	6	7	14	15	0	1.21	0.64	2, 3	2.1	2.9	2.3	2.4	33.5	33.0	31.1	32.5	54.0	31.1	40.1	41.7	21	5	5	5	0	0	0	
Nov	12	19	3	25	7	4	12	6	2	0.11	0.11	1	1.2	2.5	0.6	1.4	28.0	29.2	26.7	28.0	56.6	35.6	42.1	44.8	24	6	0	1	0	1	0	
Dec	12	11	9	17	13	7	8	16	0	1.44	0.53	4, 5	3.4	4.2	2.8	3.5	28.4	29.8	29.3	29.2	67.5	44.4	55.8	55.9	14	11	6	8	0	7	0	
Sums	152	129	139	150	86	81	129	198	31	15.48	....	....	32.0	45.9	34.8	37.6	408.8	436.8	421.5	422.8	677.0	429.2	533.9	546.6	199	118	48	83	0	36	32	
	Percentages.																								Percentages.							
Means	13.9	11.8	12.7	13.7	7.9	7.4	11.8	18.0	2.8	.....	....	....	2.7	3.8	2.9	3.1	34.1	36.4	35.1	35.2	56.4	35.8	44.5	45.6	54.5	32.3	13.2	22.7	0	9.9	8.8	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.48 a. m., 12.48 p. m., and 8.48 p. m., local time.

Corrections for instrumental errors of barometer used: From 4.48 a. m., January 1, to 4.48 a. m., June 19, inclusive, —.001 inch. From 4.48 a. m., August 26, to 8.48 p. m., December 31, inclusive, +.010 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 4.900; February, 4.860; March, 4.830; April, 4.730; May, 4.610; June, 4.540; July, 4.570; August, 4.570; September, 4.600; October, 4.700; November, 4.840; December, 4.830.

CHAS. A. READ,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

HATTERAS, N. C.

[Latitude, 35° 15′ N.; longitude, 75° 40′ W. Magnetic variation, 2° 30′ W. Elevation of barometer above sea-level, 12 feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.189	30.142	30.183	30.171	30.611	23	29.294	9	1.317	41.8	44.4	42.3	42.8	59.0	19	25.0	10, 12	34.0	48.2	37.6	3,530	3,497	3,949	10,976	42	NE.	9
Feb	30.293	30.265	30.290	30.283	30.658	2	29.956	25	.702	46.5	50.8	47.2	48.2	67.0	16	36.0	27	31.0	54.8	42.6	3,904	4,322	3,933	12,159	44	NE., SW.	{ 12 28
Mar	30.035	29.971	30.001	30.002	30.459	5	29.468	26	.991	44.5	50.5	46.3	47.1	67.0	19	32.0	24	35.0	54.2	40.1	4,595	4,964	5,149	14,708	60	NE.	26
Apr	30.022	29.984	30.040	30.015	30.434	4	29.523	23	.911	54.6	59.9	54.3	56.3	74.0	12	38.0	3	36.0	61.8	49.4	4,298	4,662	4,591	13,551	58	SW.	23
May	30.003	29.962	29.996	29.987	30.265	18	29.434	21	.831	63.1	68.5	62.9	64.8	79.0	30	51.0	1, 4	28.0	69.8	58.8	4,206	4,910	4,862	13,978	56	NE.	2
June	30.027	30.002	30.022	30.017	30.297	3	29.229	27	.568	74.4	79.2	73.2	75.6	90.0	25	63.0	2	27.0	80.5	70.5	3,399	3,888	4,036	11,323	40	SW.	11
July	30.053	30.028	30.048	30.043	30.304	21	29.747	24	.557	78.6	83.5	76.7	79.6	90.0	{ 14 20 23 }	67.5	25	22.5	85.1	73.5	3,391	3,697	3,967	11,055	40	N.	10
Aug	30.014	29.994	30.016	30.008	30.180	5, 18	29.781	29	.399	75.9	80.3	74.9	77.0	92.0	1	67.0	13, 31	25.0	82.3	71.9	3,381	4,011	3,909	11,301	34	NE.	4
Sept.. .	30.037	30.009	30.023	30.023	30.248	27	29.718	24	.530	72.1	75.8	71.6	73.2	85.0	4, 17	63.0	{ 8, 10 26 }	22.0	78.0	68.9	3,924	4,180	4,125	12,229	48	NE.	10
Oct	30.114	30.078	30.098	30.097	30.465	17	29.713	29	.752	64.2	67.4	63.2	64.9	82.0	2	52.0	25, 27	30.0	70.3	60.1	3,100	3,447	3,206	9,755	32	NE.	2, 15
Nov	30.214	30.163	30.185	30.187	30.587	16	29.896	14	.691	54.0	59.5	54.9	56.1	77.0	11	33.0	16	44.0	63.1	49.7	2,781	2,950	2,655	8,386	46	N.	27
Dec	30.162	30.116	30.145	30.141	30.478	7	29.673	14	.800	46.0	52.2	48.8	49.3	68.0	8	30.5	18	37.5	56.4	42.8	2,301	2,257	2,075	6,633	40	NW.	28
Sums..	361.163	360.714	361.047	360.974	......	.....	......	...	......	716.6	772.0	716.3	784.9	....	....	....	......	....	804.5	665.9	42,810	46,785	46,459	136,054	...	....	....
																					Averages.						
Means.	30.097	30.060	30.087	30.081	30.658	*2	29.294	†9	......	59.7	64.3	59.7	61.2	92.0	‡1	25.0	†10, 12	....	67.0	55.5	3,567.5	3,898.8	3,871.6	......	...	....	....

* February. † January. ‡ August.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.*				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	17	29	5	4	3	15	6	13	1	8.90	4.41	18, 19	6.3	6.1	5.0	5.8	39.9	40.6	39.5	40.0	92.8	87.0	90.5	90.1	5	16	10	18	1	5	0	
Feb	5	30	7	7	3	19	5	8	0	8.08	.98	24, 25	6.1	5.9	4.8	5.6	42.2	43.7	42.7	42.9	86.0	78.0	85.1	83.0	7	11	10	11	0	0	0	
Mar	7	33	2	5	3	21	11	11	0	7.60	3.55	26	5.0	5.4	5.3	5.2	38.0	40.4	39.6	39.3	78.5	70.2	78.3	75.7	9	11	11	13	0	0	0	
Apr	4	35	4	6	10	18	7	5	1	6.74	3.21	23	5.6	5.6	5.6	5.6	49.9	51.8	50.5	50.7	85.2	75.5	87.8	82.8	7	15	8	11	0	0	0	
May	10	26	4	8	10	24	5	6	0	7.81	3.56	1, 2	5.1	3.7	4.3	4.4	57.6	59.3	57.7	58.2	83.5	73.9	84.5	80.6	11	12	8	8	0	0	0	
June......	2	16	5	19	9	33	5	1	0	6.76	2.61	26, 27	5.4	4.7	3.7	4.6	70.2	71.0	70.2	70.5	87.1	76.4	90.7	84.7	6	22	2	13	0	0	0	
July	1	17	12	11	12	31	7	2	0	6.20	2.61	9, 10	4.5	3.6	3.9	4.0	71.3	72.1	70.5	71.3	79.2	69.7	81.8	76.9	9	18	4	8	0	0	0	
Aug	7	39	14	7	7	14	1	4	0	3.13	.82	16, 17	5.8	5.1	4.3	5.2	70.6	70.6	69.2	70.1	83.8	73.1	83.3	80.1	9	11	11	14	0	0	1	
Sept	8	30	11	7	5	21	4	3	1	9.89	4.00	10, 11	5.9	6.5	4.5	5.6	67.2	68.3	67.4	67.6	84.7	78.6	87.1	83.5	8	11	11	11	0	0	0	
Oct	14	47	8	6	4	5	2	7	0	3.89	.95	14, 15	7.0	6.2	4.6	5.9	61.5	62.2	60.6	61.4	91.2	84.6	91.5	89.1	4	17	10	11	0	0	0	
Nov	32	9	1	5	2	22	4	12	3	4.50	3.88	25, 26	5.3	4.5	3.6	4.5	48.0	50.2	49.4	49.2	81.1	72.5	82.7	78.8	9	16	5	5	0	0	0	
Dec	18	19	5	2	6	16	5	15	7	3.46	.88	25	6.0	5.4	3.0	4.8	42.0	45.3	43.9	43.7	82.5	78.8	83.6	81.6	8	18	5	10	0	2	0	
Sums ..	125	330	78	87	74	239	62	87	13	76.96	...	......	68.0	63.0	52.6	61.2	658.4	675.5	661.2	664.9	1,015.6	918.8	1,026.9	986.9	92	178	95	133	1	7	1	
	Percentages.																								Percentages.							
Means.	11.4	30.1	7.1	7.9	6.8	21.8	5.7	7.9	1.2	.....	.....	......	5.7	5.2	4.4	5.1	54.9	56.3	55.1	55.4	84.6	76.5	85.6	82.2	25.2	48.8	26.0	36.4	0.3	1.9	0.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.06 a. m., 3.06 p. m., and 11.06 p. m., local time.
Correction for instrumental error of barometer used: From 7.06 a. m., January 1, to 11.06 p. m., December 31, inclusive, +009 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.010; February, 0.010; March. 0.010; April, 0.010; May, 0.010; June, 0.010; July, 0.010; August, 0.010; September, 0.010; October, 0.010; November, 0.010; December, 0.010.

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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

HELENA, MONT.

[Latitude, 46° 34′ N.; longitude, 112° 4′ W. Magnetic variation, 20° 30′ E. Elevation of barometer above sea-level, 4,100 feet. Elevation of exposed thermometer above ground, 5.6 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	2 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	25.776	25.764	25.749	25.760	26.151	7	25.372	11	.779	15.2	21.6	18.7	18.5	50.0	10	−34.0	19	84.0	26.1	10.2	1,371	1,378	1,520	4,269	30	SW.	9
Feb	25.889	25.882	25.877	25.883	26.255	26	25.244	13	1.011	9.1	18.0	15.1	14.1	50.0	22	−32.0	8	82.0	23.4	5.7	541	671	805	2,017	22	SW.	22
Mar	25.831	25.799	25.818	25.816	26.229	2	25.413	17	.816	28.3	40.3	33.9	34.2	64.0	22	4.0	26	60.0	44.0	25.7	1,336	1,240	1,884	4,460	36	SW.	8, 19
Apr	25.696	25.653	25.669	25.673	26.081	24	25.154	20	.927	33.9	47.0	40.3	40.4	64.0	28	11.0	1	53.0	50.0	31.9	1,357	1,688	1,938	4,983	30	SW.	15
May ...	25.767	25.728	25.742	25.746	26.116	20	25.373	17	.743	42.5	57.2	49.8	49.8	72.0	20	25.0	4	47.0	59.5	40.5	1,664	1,592	2,002	5,258	21	N.	1
June	25.781	25.751	25.750	25.761	26.042	8	25.499	10	.543	54.1	69.4	61.8	61.8	94.0	29	37.0	1	57.0	71.9	51.0	1,337	1,387	1,663	4,387	48	SW.	5
July	25.871	25.837	25.848	25.852	26.020	6	25.641	14	.379	64.5	73.7	67.9	68.7	90.0	18	46.0	6	44.0	77.5	55.5	1,199	1,157	2,117	4,473	24	SW.	18 19
Aug.....	25.876	25.846	25.846	25.856	26.012	27	25.588	20	.424	63.9	72.5	67.2	67.9	87.0	15	38.0	22	49.0	77.5	56.3	983	884	1,342	3,209	28	NW., SW.	16 18
Sept.....	25.907	25.879	25.868	25.885	26.368	20	25.591	30	.777	52.8	64.5	59.2	58.8	81.0	4, 5	39.0	30	42.0	69.3	48.2	855	682	1,035	2,572	22	SW.	16
Oct......	25.751	25.759	25.748	25.753	26.126	10	25.213	27	.913	34.8	41.2	38.9	38.3	68.0	4	23.0	16 23 24 31	45.0	45.8	33.7	1,043	1,074	1,231	3,348	23	SW.	28
Nov.....	25.730	25.711	25.732	25.724	26.215	18	25.290	22	.925	28.1	36.0	33.0	32.4	60.0	30	−14.0	25	74.0	41.7	24.2	1,041	1,026	1,244	3,311	21	NW.	20
Dec.*....	25.803	25.805	25.802	25.803	26.336	31	25.169	25	1.167	26.0	29.9	27.4	27.8	52.0	16	−5.5	30	57.5	35.0	21.9	1,192	976	1,101	3,269	25	SW.	1
Sums..	309.678	309.414	309.449	309.512	......	....	......	....	......	453.2	571.3	513.2	512.7	....	....	......	......	....	621.7	404.8	13,919	13,755	17,882	45,556	....	....	....
																					Averages.						
Means.	25.806	25.784	25.787	25.792	26.368	†20	25.154	‡20	......	37.8	47.6	42.8	42.7	94.0	§29	−34.0	‖19	....	51.8	33.7	1,160.0	1,146.2	1,490.2	......	....	....	....

* One 7 a. m. observation missed. † September. ‡ April. § June. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1888.										*In.*	*In.*						°	°	°	°												
Jan	0	0	1	0	0	60	1	5	26	0.57	0.12	6, 7	6.5	7.8	6.6	7.0	12.5	17.5	14.9	15.0	89.6	84.9	85.4	86.6	2	15	14	12	13	28	0	
Feb	0	0	0	0	0	35	2	6	41	0.73	0.30	14	4.3	5.6	4.1	4.7	6.7	14.5	12.4	11.2	90.5	87.4	89.7	89.2	9	13	6	9	14	25	0	
Mar	0	0	2	0	0	68	1	2	20	0.73	0.41	26, 27	3.8	5.6	4.3	4.6	24.3	34.1	28.9	29.1	85.5	78.9	82.5	82.3	12	12	7	11	7	22	0	
Apr	3	4	0	3	3	54	5	4	14	0.53	0.20	23	5.9	5.7	4.2	5.3	27.0	38.1	33.0	32.7	76.0	72.5	74.1	74.2	4	21	5	9	1	12	0	
May	1	0	4	1	1	61	14	5	6	1.54	0.48	1	4.7	5.9	5.5	5.4	32.7	44.2	39.2	38.7	68.6	63.2	68.2	66.7	9	13	9	9	0	5	0	
June......	1	7	1	0	2	64	6	1	8	1.74	0.50	7	3.3	4.4	3.5	3.7	42.9	55.8	50.5	49.7	67.0	63.6	66.6	65.7	11	15	4	9	0	0	4	
July	1	1	2	0	9	68	6	6	0	0.32	0.27	29	0.9	4.3	2.6	2.6	52.3	58.8	55.0	55.4	65.0	60.6	64.8	63.5	20	10	1	2	0	0	0	
Aug	10	17	11	0	0	42	4	9	0	(1)	(1)	(1)	2.2	4.0	2.4	2.9	47.6	47.6	47.3	47.5	56.1	42.9	50.6	49.9	17	11	3	....	0	0	0	
Sept	23	32	0	0	0	24	4	7	0	(1)	(1)	(1)	2.0	3.0	1.8	2.3	37.5	42.1	41.9	40.5	57.3	45.5	58.9	52.2	18	10	2	....	0	0	0	
Oct	24	18	2	6	3	29	2	14	0	(1)	(1)	(1)	5.9	6.9	5.8	6.2	29.4	34.0	32.6	32.0	80.1	76.3	78.5	78.3	3	17	11	....	0	11	0	
Nov	28	10	2	2	1	44	1	2	0	0.66	0.27	24	4.0	5.0	2.9	4.0	20.1	23.8	22.6	22.2	72.8	62.5	66.0	66.9	14	11	5	6	3	20	0	
Dec.[2]	34	9	0	0	0	15	16	10	8	1.02	0.48	25, 26	3.4	5.7	4.5	4.5	18.2	19.3	17.9	18.5	71.2	64.5	67.0	67.6	11	12	7	7	9	27	0	
Sums ..	125	98	25	12	19	564	62	71	123	.....	....	......	46.9	63.9	48.2	53.2	351.2	429.8	396.2	392.5	879.2	802.8	847.3	843.1	130	160	74	....	47	151	4	
	Percentages.																								Percentages.							
Means .	11.4	8.5	2.8	1.1	1.7	51.6	6.7	6.5	11.2	.....	....	......	3.9	5.3	4.0	4.4	29.3	35.8	33.0	32.7	73.3	66.9	70.6	70.3	35.7	43.8	20.3	....	12.9	41.4	1.1	

[1] Gauge unserviceable. [2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.40 a. m., 12.40 p. m., and 8.40 p. m., local time.

Correction for instrumental error of barometer used: From 4.40 a. m., January 1, to 8.40 p. m., December 31, inclusive, +.007 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 4.430; February, 4.400; March, 4.370; April, 4.260; May, 4.170; June, 4.120; July, 4.060; August, 4.090; September, 4.170; October, 4.300; November, 4.380; December, 4.280.

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Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

HURON, DAK.

[Latitude, 44° 21′ N.; longitude, 98° 9′ W. Magnetic variation, 14° E. Elevation of barometer above sea-level, 1,305 feet. Elevation of exposed thermometer above ground, 18 feet. Elevation of rain-gauge above ground, 38 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometer.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1882.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan....	28.714	28.688	28.725	28.709	29.164	3	27.989	12	1.225	— 0.9	8.3	1.4	2.9	45.0	9	—30.3	20	75.3	12.8	—10.5	2,578	2,664	2,775	8,017	40	NW.	29 30
Feb....	28.824	28.794	26.823	28.814	29.297	17	28.108	15	1.189	6.6	20.5	11.8	13.0	48.0	28	—31.8	4	79.8	24.2	zero.	2,033	2,418	2,097	6,543	28	NW.	16
Mar....	28.709	28.691	28.701	28.700	29.319	2	27.984	17	1.335	22.0	33.0	27.5	27.5	70.5	17	— 7.8	18	78.3	38.2	18.5	2,188	2,771	2,434	7,393	44	NW.	9
Apr....	28.506	28.480	28.499	28.495	29.122	24	27.891	21	1.231	36.5	53.4	44.8	44.7	79.3	20	23.5	5	55.8	57.1	34.4	2,499	2,961	2,883	8,343	48	E.	21
May....	28.550	28.522	28.538	28.537	28.897	10	27.708	18	1.189	44.2	57.5	49.6	50.4	78.8	31	32.0	10	46.8	61.3	41.6	2,565	3,273	3,106	8,944	41	E.	9, 13
June....	28.550	28.538	28.545	28.544	28.773	24	28.187	11	0.586	57.5	73.4	63.2	64.7	94.1	30	34.0	3	60.1	77.4	62.8	1,986	2,523	2,280	6,739	36	NE. NW.	17 22 23
July....	28.595	28.575	28.565	28.578	28.905	28	28.165	15	0.740	60.9	77.3	67.8	68.7	99.2	1	46.0	17	53.2	81.5	58.2	1,768	2,480	2,011	6,259	34	NW.	16
Aug....	28.646	28.626	28.628	28.633	28.872	28	28.092	21	0.780	58.6	76.2	65.3	66.7	90.6	16	42.7	23	47.9	79.3	56.5	1,881	2,374	2,165	6,420	29	NW.	19
Sept....	28.699	28.668	28.683	28.683	29.023	2	28.358	12	0.665	47.9	66.2	54.5	56.2	88.0	11	28.2	30	59.8	69.1	45.8	2,381	2,810	2,467	7,658	40	SE. NW.	18 21
Oct....	28.652	28.627	28.656	28.645	29.161	19	28.005	17	1.156	38.1	50.5	43.0	43.9	76.8	6	21.8	20	55.0	53.4	35.4	2,007	2,630	2,316	6,953	32	W.	29
Nov....	28.612	28.577	28.590	28.593	29.210	15 28	28.108	25	1.102	24.8	40.4	29.4	31.4	62.4	2	— 4.3	15	66.7	45.6	18.3	2,149	2,755	2,425	7,329	36	NW.	13
Dec....	28.673	28.658	28.694	28.675	29.257	31	27.885	17	1.372	13.8	25.8	15.9	18.3	57.0	4	—20.5	27	77.5	31.1	7.0	2,094	2,436	2,411	6,971	34	NW.	17
Sums.	343.730	343.444	343.647	343.606	......	....	......	....	......	409.0	582.5	473.7	488.4	....	....	......	....	....	631.0	358.0	26,079	32,090	29,400	87,569	....	....	....
																						Averages.					
Means	28.644	28.620	28.637	28.634	29.319	*2	27.708	†18	......	34.1	48.5	39.5	40.7	99.2	‡1	—31.8	§4	....	52.6	29.8	2,173.2	2,674.2	2,450.0	......	....	....	....

* March. † May. ‡ July. § February.

Month	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	7	1	1	26	3	1	2	52	0	0.17	0.07	18	4.2	6.2	3.5	4.6	—12.0	— 4.6	—11.0	— 9.2	57.1	56.0	56.7	56.6	7	19	5	5	28	31	0	
Feb	3	0	1	22	9	10	8	31	0	0.47	0.13	14	4.6	5.3	4.0	4.6	— 2.1	10.5	3.3	3.9	61.7	61.6	62.2	61.8	11	9	8	10	17	28	0	
Mar	15	12	7	15	5	5	2	31	1	0.42	0.17	28	5.5	6.2	5.5	5.7	12.1	19.1	18.5	16.6	64.6	57.3	67.9	63.3	6	14	11	9	6	31	0	
Apr	15	12	9	20	3	3	4	24	0	2.14	0.99	21, 22	6.1	6.3	3.9	5.4	29.4	36.0	35.8	33.7	75.2	54.7	72.2	67.4	6	16	8	10	0	12	0	
May	15	10	12	18	2	3	5	28	0	4.45	1.33	13, 14	5.9	7.4	4.8	6.0	38.2	42.9	43.8	41.6	79.6	61.1	80.8	73.8	7	12	12	13	0	0	0	
June	18	4	4	21	14	7	5	17	0	4.33	2.10	17	3.8	5.2	3.4	4.1	50.2	55.5	56.8	54.2	77.5	54.5	79.7	70.6	12	15	3	12	0	0	3	
July	8	10	15	14	18	6	7	15	0	5.20	2.21	5, 6	5.2	5.3	4.2	4.9	56.7	61.3	62.1	60.0	86.3	58.9	82.3	75.8	8	17	6	10	0	0	3	
Aug	9	1	14	34	13	6	4	12	0	1.77	0.94	6, 7	4.8	4.2	4.3	4.4	55.0	61.2	60.3	58.8	88.3	61.9	84.0	78.1	12	12	7	12	0	0	2	
Sept	19	6	7	22	10	3	2	20	1	1.68	0.84	21, 22	5.2	4.6	3.1	4.3	43.7	49.0	46.5	46.4	85.5	56.3	74.4	72.1	11	15	4	8	0	2	0	1st killing frost 8th.
Oct	5	9	3	35	3	4	14	20	0	1.96	0.68	16, 17	6.6	7.1	6.1	6.6	33.3	34.5	35.2	34.3	82.5	59.4	74.8	72.2	3	14	14	15	0	9	0	
Nov	9	1	2	28	9	9	4	28	0	0.05	0.06	4, 5	4.1	3.9	2.8	3.6	16.4	23.0	20.2	19.9	71.7	51.7	68.6	64.0	16	10	4	2	5	28	0	
Dec	14	4	2	19	7	3	8	34	2	0.61	0.36	6	3.6	5.3	3.7	4.2	6.3	12.1	7.7	8.7	73.3	57.5	69.9	66.9	11	15	5	9	14	31	0	
Sums .	137	70	77	274	96	60	65	312	4	23.25	....	.....	59.6	67.0	49.3	58.4	327.2	400.5	379.2	368.9	903.3	690.9	873.5	822.6	110	168	87	115	70	172	8	
	Percentages.																								Percentages.							
Means	12.5	6.4	7.0	25.0	8.8	5.5	5.9	28.5	0.4	.....	....	......	5.0	5.6	4.1	4.9	27.3	33.4	31.6	30.8	75.3	57.6	72.8	68.6	30.0	46.0	23.8	31.5	19.2	47.1	2.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 5.35 a. m., 1.35 p. m., and 9.35 p. m., local time.

Correction for instrumental error of barometer used: From 5.35 a. m. January 1, to 9.35 p. m., December 31, inclusive, +0.010 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.540; February, 1.520; March, 1.480; April, 1.450; May, 1.350; June, 1.340; July, 1.320; August, 1.340; September, 1.380; October, 1.430; November, 1.480; December, 1.540.

SAMUEL W. GLENN,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

INDIANAPOLIS, IND.

[Latitude, 39° 46′ N.; longitude, 86° 10′ W. Magnetic variation, 4° 45′ E. Elevation of barometer above sea-level, 758 feet. Elevation of exposed thermometer above ground, 52 feet. Elevation of rain-gauge above ground, 74 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.320	29.294	29.321	29.312	29.791	22	28.664	10	1.127	21.6	28.2	23.6	24.5	45.0	17	—11.0	22	56.0	30.7	16.8	1,574	1,787	1,733	5,094	20	W.	31
Feb.[1]	29.446	29.405	29.417	29.423	29.883	18	28.887	24	.996	26.7	36.7	32.6	32.0	72.0	16	4.0	1	68.0	41.0	22.1	1,246	1,369	1,176	[2]3,791	21	NW.	26
Mar	29.222	29.189	29.209	29.207	29.693	3	28.752	10	.941	30.8	42.1	35.3	36.1	68.4	18	12.0	20	56.4	45.1	27.0	1,397	2,058	1,835	5,290	24	NW.	6
Apr	29.155	29.120	29.130	29.135	29.498	3	28.736	22	.762	47.1	60.0	52.9	53.3	85.3	14	30.4	24	54.9	63.0	43.9	1,427	1,910	1,604	4,941	26	SW.	15
May	29.158	29.120	29.143	29.140	29.517	6	28.695	14	.822	55.8	67.5	59.4	60.9	82.8	9	35.0	22	47.8	70.2	50.9	1,217	1,946	1,699	4,862	23	W.	10
June	29.161	29.123	29.140	29.141	29.513	1	28.748	10	.765	67.0	77.9	69.6	71.5	89.0	17	50.0	1	39.0	79.7	62.5	939	1,583	1,451	4,973	22	W.	10
July	29.251	29.219	29.226	29.232	29.523	18	28.907	12	.616	70.7	81.6	72.9	75.1	92.0	3	56.8	31	35.2	83.4	65.7	727	1,376	1,191	3,294	32	NW.	12
Aug	29.288	29.255	29.268	29.270	29.489	6	29.064	1	.425	64.0	78.4	68.9	70.4	91.0	19, 22	53.0	7	38.0	78.9	60.8	519	1,092	934	2,545	26	W.	22
Sept	29.280	29.231	29.249	29.253	29.595	9	28.895	24	.700	56.2	71.6	61.8	63.2	87.0	2	40.4	26	46.6	72.9	54.0	498	737	605	1,840	16	W.	30
Oct	29.285	29.270	29.285	29.280	29.694	16	28.626	29	1.068	50.7	59.5	54.2	54.8	81.0	9	35.0	16	46.0	61.0	48.2	641	1,074	729	2,444	20	NW.	31
Nov	29.330	29.298	29.306	29.311	29.864	16	28.819	21	1.045	40.7	50.2	44.2	45.0	65.0	9, 20, 22	10.0	16	55.0	52.7	37.1	1,226	1,592	1,459	4,277	28	NW.	26
Dec	29.281	29.258	29.288	29.276	29.626	22	28.725	16	.901	30.7	38.6	33.9	34.4	62.0	6	9.0	17	53.0	42.2	25.8	1,331	1,778	1,467	4,576	24	NW.	27
Sums	351.177	350.782	350.982	350.980	......	....	......	....	......	562.0	692.3	609.3	621.2	....	......	......	....	....	720.8	514.8	12,742	18,302	15,883	46,927	....	....	....
																					Averages.						
Means.	29.265	29.232	29.248	29.248	29.883	[3]18	28.626	[4]29	......	46.8	57.7	50.8	51.8	92.0	[5]3	—11.0	[6]22	....	60.1	42.9	1,061.8	1,525.2	1,323.6	......	....	....	....

[1] One 4 p. m. observation missed.

[2] For 26½ days.

[3] February.

[4] October.

[5] July.

[6] January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness in tenths.				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	12	7	9	9	12	20	16	0	1.32	.30	10	8.1	6.2	6.5	6.9	15.9	19.2	17.0	17.4	78.0	68.1	75.3	73.8	5	8	18	14	16	30	0	
Feb.[1]	14	4	8	8	3	19	9	15	3	7.19	2.80	3, 4	5.7	6.3	6.0	6.0	20.6	25.2	26.0	23.9	77.3	63.4	70.4	72.4	6	10	11	14	7	22	0	
Mar ...	13	15	9	5	5	16	12	15	3	3.25	1.52	29, 30	4.4	5.9	4.5	4.9	22.7	22.8	25.0	23.5	71.4	48.8	66.7	62.3	6	18	7	11	2	21	0	
Apr	10	14	6	11	16	14	8	7	4	2.73	.88	22, 23	5.7	6.3	4.8	5.6	38.0	38.0	40.0	38.7	71.7	46.9	62.9	60.5	7	13	10	15	0	4	0	
May	10	4	4	10	14	21	8	21	1	4.02	1.13	14	6.4	6.4	4.4	5.7	45.9	46.6	47.1	46.5	70.3	49.4	65.3	61.7	8	12	11	14	0	0	0	
June.....	11	4	1	12	16	18	16	11	1	4.59	1.59	6	6.0	7.2	4.5	5.9	58.2	59.1	59.5	58.9	78.7	54.5	71.3	66.5	6	14	10	19	0	0	0	
July	6	7	2	2	17	29	10	11	9	6.12	1.44	12, 13	4.1	5.9	3.3	4.4	61.4	60.9	63.3	61.9	73.2	50.9	72.3	65.5	10	15	6	13	0	0	4	
Aug	14	19	11	4	4	9	7	8	17	2.48	1.46	23	4.4	5.8	3.1	4.4	55.9	55.8	58.7	56.8	75.5	46.7	70.5	64.2	11	15	5	11	0	0	2	
Sept	9	22	9	3	10	7	10	3	17	2.72	1.11	23, 24	4.6	4.2	2.3	3.7	49.0	50.8	51.7	50.5	77.6	50.4	70.2	66.1	14	12	4	10	0	0	0	
Oct	6	12	11	12	13	6	9	4	20	8.56	1.90	28, 29	6.8	7.6	4.8	6.4	44.4	44.3	44.9	44.5	79.7	60.1	71.8	70.5	6	18	12	14	0	0	0	
Nov	8	6	2	2	28	15	8	17	9	6.80	3.71	21	5.1	4.7	3.7	4.5	32.8	31.1	31.9	31.9	73.8	50.2	62.8	62.3	9	15	6	13	3	11	0	
Dec......	6	6	2	4	25	15	13	20	2	4.34	1.82	22, 23	6.1	6.1	5.5	5.9	28.8	25.4	24.4	24.5	75.8	60.4	68.2	68.1	8	12	11	16	8	18	0	
Sums ..	110	125	72	82	160	181	130	148	86	54.12	....	......	67.4	72.6	53.4	64.8	468.6	479.2	489.5	479.0	898.0	649.8	833.7	793.9	96	157	111	164	35	106	6	
	Percentages.																								Percentages.							
Means	10.1	11.4	6.6	7.5	14.6	16.5	11.9	13.5	7.9	.....	.....	....	5.6	6.0	4.4	5.8	39.0	39.9	40.8	39.9	74.8	54.2	69.5	66.2	26.4	43.1	30.5	44.9	9.6	29.0	1.6	

[1] One 4 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.24 a. m., 2.24 p. m., and 10.24 p. m., local time.
Correction for instrumental error of barometer used: From 6.24 a. m., January 1, to 10.24 p. m., December 31, inclusive, +0.013 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.840; February, 0.850; March, 0.840; April, 0.820; May, 0.790; June, 0.780; July, 0.770; August, 0.770; September, 0.780; October, 0.800; November, 0.840; December, 0.850.

C. F. R. WAPPENHANS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

INDIANOLA, TEX.

[Latitude, 28° 32′ N.; longitude, 96° 31′ W. Magnetic variation, 8° 30′ E. Elevation of barometer above sea-level, 26 feet. Elevation of exposed thermometer above ground, 29 feet. Elevation of rain-gauge above ground, 40 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan.*	30.123	30.114	30.153	30.130	30.643	22	29.872	18	.771	46.7	52.5	48.8	49.2	74.5	26	18.0	21	56.5	57.2	40.5	3,453	3,704	3,872	11,029	59	N.	8
Feb	30.164	30.164	30.188	30.172	30.662	27	29.671	23	.991	50.6	58.1	53.4	54.0	77.1	12	21.5	5	55.6	60.8	45.4	3,426	3,576	3,540	10,542	60	N.	17
Mar	30.012	30.010	30.026	30.016	30.451	1	29.581	24	.870	61.1	67.4	63.4	64.0	77.8	25	41.3	8	36.5	70.3	57.3	2,916	3,575	3,310	9,801	54	NE.	7
Apr	29.894	29.889	29.898	29.894	30.449	16	29.416	21	1.033	67.7	75.6	70.5	71.3	85.7	21	57.1	2	28.6	77.5	65.2	3,886	3,937	3,899	11,722	56	NW.	28
May	29.936	29.951	29.956	29.948	30.195	6	29.737	29	.458	72.9	80.4	75.3	76.2	91.0	30	62.3	21	28.7	82.5	70.3	3,105	3,844	3,889	10.838	49	NW.	20
June	29.942	29.948	29.942	29.944	30.065	30	29.671	9	.394	78.9	87.0	80.3	82.1	94.9	21	69.1	6, 28	25.8	89.5	76.5	2,154	2,751	2,948	7,853	31	SW.	28
July	30.043	30.045	30.046	30.045	30.237	18	29.869	13	.368	79.3	87.6	80.6	82.5	95.1	31	73.7	4	21.4	90.4	77.3	2,087	2,805	3,016	7,908	27	S.	14
Aug	30.010	29.996	30.008	30.005	30.154	15	29.847	11	.307	79.2	90.2	81.4	83.6	96.0	16	72.4	30	23.6	92.4	77.9	1,766	2,195	2,749	6,710	43	NE.	17
Sept	30.012	30.002	30.017	30.010	30.195	26	29.850	13	.345	75.0	81.8	77.8	78.2	90.0	1	61.2	23	28.8	83.8	72.4	2,376	2,626	2,705	7,707	45	E.	5
Oct	29.988	29.970	29.996	29.985	30.272	31	29.725	28	.547	74.0	80.7	75.8	76.8	89.8	7	51.8	25	38.0	83.1	71.4	3,162	3,538	3,556	10,256	38	N.	{ 13 { 25
Nov	30.097	30.069	30.112	30.093	30.561	16	29.716	10	.845	63.1	70.1	65.7	66.3	82.2	5, 9, 10	42.2	15	40.0	72.8	59.9	3,395	3,534	3,430	10,359	46	N.	26
Dec	30.116	30.093	30.136	30.115	30.686	15	29.818	18	.868	56.2	63.9	56.5	59.5	78.1	6	35.7	16	42.4	65.9	52.9	3,158	3,632	3,536	10,326	36	N.	3, 31
Sums	360.337	360.251	360.478	360.357	......	...	......	...	......	804.7	895.3	831.0	843.7	....	......	....	....	....	925.7	767.0	34,884	39,717	40,450	115,051	....	....	....
																					Averages.						
Means	30.028	30.021	30.040	30.030	30.686	†15	29.416	‡21	......	67.1	74.6	69.2	70.3	96.0	§16	18.0	‖21	....	77.1	63.9	2,907	3,310	3,371	......	....	....	....

* One 7 a. m. observation missed.
† December.
‡ April.
§ August.
‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan.[1]	36	7	16	6	15	3	2	5	2	0.97	0.32	12	5.7	5.4	3.3	4.8	43.1	44.5	44.3	44.0	87.6	76.4	86.5	83.5	8	16	7	11	2	6	0	
Feb	26	9	10	17	14	2	0	4	2	0.81	0.30	17, 18	6.8	7.1	6.0	6.6	47.0	51.5	49.0	49.2	88.2	79.8	86.4	84.8	3	14	11	13	2	6	0	
Mar	9	9	19	13	24	2	3	2	12	5.38	2.24	13	5.8	6.0	3.6	5.1	57.9	59.0	58.5	58.5	89.5	74.9	84.5	83.0	5	20	6	7	0	0	0	
Apr	17	10	11	17	32	1	0	2	0	1.99	1.09	8	5.8	5.7	4.6	5.4	62.7	63.6	63.9	63.4	84.7	68.8	81.3	78.3	4	19	7	7	0	0	0	
May	7	7	11	31	33	0	2	1	1	3.59	2.02	20	4.7	5.2	3.6	4.5	67.7	67.8	68.2	67.9	84.4	66.9	79.5	76.9	8	22	1	8	0	0	1	
June	0	1	10	26	48	1	0	1	3	1.72	0.51	6	3.5	5.1	2.4	3.7	75.4	74.6	74.8	74.9	89.6	66.8	83.5	80.0	10	19	1	6	0	0	16	
July	0	2	7	25	50	4	0	1	4	0.61	0.37	4, 5	3.3	4.0	1.3	2.9	75.2	73.5	75.1	74.6	88.2	64.0	83.9	78.7	19	11	1	5	0	0	22	
Aug	6	3	13	18	40	7	1	1	4	0.32	0.20	24	3.0	3.4	0.8	2.4	74.8	72.1	74.5	73.8	86.8	56.5	79.8	74.4	21	10	0	4	0	0	25	
Sept	12	9	24	15	17	3	3	3	4	9.86	4.30	4, 5	4.6	4.0	3.1	3.9	70.5	70.2	71.6	70.8	86.6	69.3	82.2	79.4	12	12	6	11	0	0	0	
Oct	11	9	16	22	28	3	0	1	3	2.46	0.76	22, 23	4.8	5.0	2.6	4.1	70.5	70.2	70.6	70.4	89.5	71.8	84.8	82.0	9	20	2	13	0	0	0	
Nov	17	21	12	15	20	1	0	3	1	1.21	0.53	14, 15	5.1	5.3	3.9	4.8	58.4	60.3	59.0	59.2	85.4	72.6	80.8	79.6	10	12	8	10	0	0	0	
Dec	27	8	12	8	21	6	4	5	2	1.77	0.86	11, 12	4.2	6.4	4.2	4.9	52.0	54.5	53.2	53.2	86.4	73.8	83.8	81.3	12	10	9	9	0	0	0	
Sums	168	95	161	213	342	33	15	29	38	30.69	...	......	57.3	62.2	39.4	53.1	755.2	761.8	762.7	759.9	1,046.9	841.6	997.0	961.9	121	185	59	99	4	12	64	
	Percentages.																								Percentages.							
Means	15.4	8.7	14.7	19.5	31.3	3.0	1.4	2.6	3.5	.....	.....	......	4.8	5.2	3.3	4.4	62.9	63.5	63.6	63.3	87.2	70.1	83.1	80.1	33.2	50.8	16.2	27.1	1.1	3.3	17.5	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 5.42 a. m., 1.42 p. m., and 9.42 p. m., local time.

Correction for instrumental error of barometer used: From 5.42 a. m., January 1, to 9.42 p. m., December 31, inclusive, —.024 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.030; February, 0.030; March, 0.030; April, 0.030; May, 0.030; June, 0.030; July, 0.030; August, 0.030; September, 0.030; October, 0.030; November, 0.030; December, 0.030.

ISAAC A. REED,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

JACKSONVILLE, FLA.

[Latitude, 30° 20′ N.; longitude, 81° 39′ W. Magnetic variation, 3° E. Elevation of barometer above sea-level, 43 feet. Elevation of exposed thermometer above ground, 37 feet. Elevation of rain-gauge above ground, 57 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.162	30.118	30.162	30.146	30.647	23	29.560	9	1.087	53.5	64.2	56.0	57.9	76.0	21	29.0	12	47.0	65.5	51.0	458	746	649	1,853	28	SW.	9
Feb	30.242	30.189	30.243	30.225	30.545	28	30.035	15	0.510	58.9	71.9	62.1	64.3	83.0	18	40.0	28	43.0	73.1	57.4	368	607	518	1,493	19	NE.	2
Mar	30.055	29.986	30.027	30.023	30.434	1	29.612	25	0.822	54.3	67.6	59.2	60.4	79.0	30 31	40.0	13	39.0	69.1	52.1	1,263	1,786	1,718	4,767	28	S.	19
Apr	29.994	29.950	29.988	29.977	30.268	3	29.667	23	0.601	66.8	75.4	68.1	70.1	88.0	22	52.0	3	36.0	78.1	64.0	1,168	1,801	1,418	4,387	34	W.	23
May	30.021	29.967	30.005	29.998	30.189	25	29.548	21	0.641	70.8	80.5	70.5	73.9	89.5	18	54.0	23	35.5	82.1	65.6	1,082	1,381	1,481	3,944	16	SW.	26
June	30.025	29.985	30.021	30.010	30.177	4	29.809	26	0.368	79.5	85.7	77.4	80.9	95.0	21	68.0	8	27.0	83.9	74.8	1,478	1,816	2,022	5,316	40	W.	22
July	30.082	30.033	30.068	30.061	30.272	22	29.884	13	0.388	81.6	90.3	80.5	84.1	98.0	16	69.5	19	28.5	92.2	76.7	1,641	1,859	2,188	5,688	36	SW.	28
Aug	30.016	29.975	30.018	30.003	30.171	14	29.800	29	0.371	77.3	87.5	77.5	80.8	94.5	20 21	70.5	23	24.0	89.7	73.9	1,004	1,358	1,682	4,044	32	W.	18
Sept	30.005	29.965	30.000	29.990	30.187	28	29.776	21	0.411	71.5	83.2	74.7	76.5	90.5	30	62.5	26	28.0	84.6	69.9	1,133	1,780	1,683	4,596	32	SE.	18
Oct......	30.047	30.007	30.041	30.032	30.204	17	29.830	12	0.374	70.6	79.6	72.4	74.2	92.0	4	59.0	25	33.0	81.9	68.8	1,407	2,083	1,791	5,281	20	E., SE.	17 18 19
Nov......	30.161	30.116	30.150	30.142	30.401	17	29.926	14	0.475	57.9	70.4	61.5	63.3	83.0	11	43.0	30	40.0	71.8	56.4	1,172	1,700	1,322	4,194	23	NW.	16
Dec	30.161	30.105	30.144	30.137	30.271	22	29.889	14	0.382	58.8	69.2	58.4	60.5	78.0	31	30.5	16	47.5	70.2	52.6	861	1,387	1,195	3,443	24	SW.	14
Sums..	360.971	360.391	360.867	360.744	......	...	......	...	......	796.5	925.5	818.3	846.9	...	...	...	...	...	947.2	763.2	13,035	18,304	17,667	49,006	...	....	....
																					Averages.						
Means.	30.081	30.033	30.072	30.062	30.647	*23	29.548	†21	......	66.4	77.1	68.2	70.6	98.0	‡16	29.0	*12	....	78.9	63.6	1,086.2	1,525.3	1,472.2	....	....	....	....

* January. † May. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	14	0	3	13	11	7	7	35	4.77	1.35	7, 8	5.8	6.1	4.4	5.4	49.6	52.5	50.8	51.0	87.3	67.6	82.8	79.2	8	13	10	9	0	1	0	
Feb	10	13	2	6	6	5	2	3	37	0.48	0.25	12, 13	4.3	5.0	3.6	4.3	54.7	56.0	56.9	55.9	87.6	60.2	83.6	77.1	11	13	4	8	0	0	0	
Mar	4	12	4	9	6	18	17	15	8	3.84	2.34	25	4.0	5.0	2.7	3.9	47.0	45.7	48.7	47.1	77.2	49.4	69.9	65.5	18	14	4	8	0	0	0	
Apr	5	25	8	11	15	13	8	4	6	4.48	2.17	23	6.1	6.5	3.2	5.3	61.4	58.9	61.5	60.6	83.6	59.8	80.8	74.7	5	20	5	9	0	0	0	
May	3	17	11	18	8	13	10	6	7	3.16	0.92	30	3.8	4.7	3.0	3.8	61.9	59.7	62.2	61.3	74.1	50.5	75.8	66.8	12	14	5	7	0	0	0	
June	0	7	16	9	14	34	5	4	1	7.05	1.17	25, 26	4.1	7.5	5.8	5.8	72.7	71.7	72.1	72.2	79.9	63.7	84.1	75.9	5	17	8	19	0	0	10	
July	0	3	10	16	12	45	2	4	1	6.88	1.65	8	2.6	5.2	2.9	3.6	74.3	72.6	73.8	73.6	78.7	57.1	80.2	72.0	13	17	1	12	0	0	20	
Aug	3	19	7	21	4	19	12	7	1	7.63	2.59	25, 26	2.8	5.0	4.1	4.0	72.6	70.4	72.6	71.9	85.5	58.7	85.1	76.4	11	15	5	12	0	0	18	
Sept	11	25	16	19	7	4	2	5	1	7.28	2.44	17	3.9	5.6	2.6	4.0	67.6	67.4	69.6	68.2	88.3	60.0	84.6	77.6	13	12	5	8	0	0	1	
Oct	18	36	10	3	8	9	1	7	1	7.26	4.23	16, 17	4.3	5.8	3.3	4.5	66.6	66.0	67.7	66.8	88.5	64.9	85.6	79.7	12	12	7	7	0	0	3	
Nov	21	20	8	17	3	2	2	8	9	0.09	0.09	19, 20	4.1	5.4	3.0	4.2	52.6	54.8	54.7	54.0	83.5	60.7	80.7	75.0	14	10	6	2	0	0	0	
Dec	13	15	2	7	13	9	10	9	15	0.42	0.42	25	3.5	3.9	2.3	3.2	50.6	53.2	54.0	52.6	89.2	58.1	86.1	77.8	15	15	1	1	0	1	0	
Sums ..	91	206	94	139	109	182	73	79	122	53.34	....	......	49.3	65.7	40.9	52.0	731.6	728.9	744.6	735.2	1003.4	710.7	979.3	897.7	132	172	61	102	0	2	52	
	Percentages.																								Percentages.							
Means .	8.3	18.8	8.6	12.7	10.0	16.6	6.7	7.2	11.1	.....	....	......	4.1	5.5	3.4	4.3	61.0	60.7	62.0	61.2	83.6	59.2	81.6	74.8	36.2	47.1	16.7	27.9	0	0.5	14.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.42 a. m., 2.42 p. m., and 10.42 p. m., local time.
Correction for instrumental error of barometer used: From 6.42 a. m., January 1, to 10.42 p. m., December 31, 0.000 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.050; February, 0.050; March, 0.050; April, 0.040; May, 0.040; June, 0.040; July, 0.040; August, 0.040; September, 0.040; October, 0.040; November, 0.050; December, 0.050.

J. W. SMITH,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

KEOKUK, IOWA.

[Latitude, 40° 22′ N.; longitude, 91° 26′ W. Magnetic variation, 8° E. Elevation of barometer above sea-level, 618 feet. Elevation of exposed thermometer above ground, 47 feet. Elevation of rain-gauge above ground, 60 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.*	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In.		In.	°	°	°	°	°		°		°			Miles.	Miles.	Miles.	Miles.			
Jan.*	29.488	29.470	29.492	29.483	30.007	23	28.920	30	1.087	11.2	19.7	15.5	15.5	43.0	30	−13.0	22	56.0	25.5	7.2	2,092	2,597	2,323	7,012	40	NW.	10
Feb	29.603	29.589	29.599	29.597	30.090	17	28.898	16	1.192	20.2	29.1	25.3	24.9	62.0	16	− 7.0	5	69.0	33.6	16.2	1,771	1,964	2,026	5,761	26	SW.	27
Mar	29.416	29.381	29.408	29.402	29.971	3	28.852	18	1.119	30.0	41.5	34.5	35.3	68.0	14	11.0	7	57.0	44.2	27.2	2,238	2,703	2,687	7,628	30	N.	18
Apr	29.251	29.211	29.238	29.233	29.627	2	28.653	22	.974	47.8	61.6	52.6	54.0	85.0	13	29.0	1	56.0	64.1	43.7	2,457	2,849	3,007	8,313	38	SE.	21
May	29.270	29.248	29.255	29.256	29.649	11	28.789	14	.860	55.5	66.0	58.0	59.8	84.0	7, 18	38.0	22	46.0	69.1	50.7	2,134	2,853	2,767	7,754	35	E.	13
June	29.282	29.264	29.255	29.267	29.552	1	28.976	8	.576	65.7	75.2	68.2	69.7	91.0	29	52.0	1	39.0	72.0	61.5	1,658	2,215	2,006	5,879	38	S.	16
July	29.357	29.343	29.331	29.344	29.676	18	28.934	13	.742	71.2	82.7	74.1	76.0	95.5	2	56.0	8	39.5	84.4	66.4	1,760	2,112	2,016	5,888	36	S. & E.	13, 20
Aug	29.427	29.406	29.404	29.412	29.644	6	29.141	21	.503	65.0	78.7	70.0	71.2	90.0	19	55.0	3, 4, 23, 24	35.0	79.8	61.8	1,265	1,802	1,520	4,587	28	S.	21
Sept	29.423	29.380	29.394	29.399	29.759	9	29.049	24	.710	54.7	72.4	61.0	62.7	86.5	1	39.0	9	47.5	73.8	52.1	1,333	1,778	1,699	4,810	28	NW.	20
Oct	29.445	29.409	29.420	29.425	29.898	15	28.826	29	1.072	46.7	57.0	50.8	51.5	84.0	8	32.0	21	52.0	58.5	44.6	1,786	1,971	2,064	5,821	48	S.	17
Nov	29.463	29.407	29.419	29.430	29.985	12	28.845	8	1.140	37.2	49.2	42.1	42.8	68.0	8	12.0	15	56.0	52.0	34.1	1,967	2,370	2,308	6,645	28	S., NW.	5, 20, 25
Dec	29.426	29.408	29.447	29.427	29.806	14	28.822	26	.984	27.5	36.9	30.9	31.8	62.0	1	2.0	19	60.0	41.6	23.1	1,588	1,704	1,511	4,803	36	SE.	6
Sums	352.851	352.516	352.662	352.677	......	...	......	...	......	532.7	670.0	583.0	595.2	....	....	......	....	....	703.6	488.6	22,049	26,918	25,934	74,901	...	....	....
																					Averages.						
Means	29.404	29.376	29.388	29.389	30.090	†17	28.653	‡22	......	44.4	55.8	48.6	49.6	95.5	§2	−13.0	‖22	....	58.6	40.7	1,837.4	2,243.2	2,161.2	......	...	....	....

* One 7 a. m. observation missed. † February. ‡ April. § July. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point (in tenths).				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan.[1] ...	8	8	11	7	5	10	21	21	1	1.24	.45	16, 17	4.5	6.3	5.3	5.4	4.8	11.4	10.7	9.0	75.3	70.0	81.2	75.5	8	13	9	11	20	31	0	
Feb	7	8	11	4	7	12	15	20	0	6.13	3.06	15, 16	4.8	5.1	5.6	5.2	13.4	18.1	18.1	16.5	74.8	64.1	74.1	71.0	12	4	12	10	10	25	0	
Mar ...	12	15	9	5	3	13	11	25	0	1.07	.63	24, 25	3.7	5.4	5.2	4.8	23.0	26.7	26.2	25.3	74.8	57.1	71.2	67.7	12	10	9	8	1	20	0	
Apr	7	16	9	16	14	11	12	5	0	2.97	1.35	22, 23	3.4	5.5	3.8	4.2	38.3	40.7	40.2	39.7	70.9	50.1	64.4	61.8	12	12	6	10	0	3	0	Last snow April 23.
May	17	16	5	11	16	10	13	13	2	4 87	1.19	28	5.9	6.0	3.5	5.1	47.5	47 2	48.4	47.7	75.5	53.2	71.4	66.7	7	18	6	13	0	0	0	Last frost 22d.
June ..	12	5	8	10	12	9	15	16	3	5.88	1.00	20, 21	5.1	6.3	3.7	5.0	59.0	59.2	61.0	59.7	79.4	59.7	78.5	72.5	8	15	7	16	0	0	1	
July	9	5	8	11	24	24	4	5	3	3.15	.95	10, 11	3.9	4.5	2.9	3.8	63.2	65.3	65.7	64.7	76.5	57.2	75.7	69.8	12	15	4	13	0	0	7	
Aug	12	11	11	8	13	12	5	14	7	1.32	.67	21	4.4	5.2	2.1	3.9	59.0	59.7	62.4	60.4	81.4	53.7	77.2	70.8	14	12	5	7	0	0	0	First frost Sept. 9.
Sept	14	10	19	5	8	9	10	11	4	1.76	1.12	7	3.2	3.5	2.3	3.0	49.0	49.6	50.4	49.7	81.6	46.4	69.4	65.8	17	9	4	8	0	0	0	1st kill'g frost Oct. 15;
																																1st light snow Oct. 24.
Oct	15	17	18	11	8	2	6	14	2	6.95	1.50	17, 18	6.1	5.7	6.5	6.1	42.4	42.4	42.8	42.5	85.3	61.7	75.5	74.2	5	15	11	16	0	0	0	
Nov	8	1	3	11	23	15	8	16	5	2.09	1.23	5	3.6	4.3	3.7	3.9	30.4	31.6	32.5	31.5	77.1	52.9	69.3	66.4	11	12	7	4	2	10	0	
Dec.....	5	5	9	9	8	13	14	17	13	1.20	.65	22	4.1	4.4	4.7	4.4	20.8	24.4	22.6	22.6	76.1	62.2	71.8	70.0	13	10	8	8	7	21	0	
Sums .	126	107	121	108	141	140	134	177	40	38.63	....	......	52.7	62.2	49.3	54.8	450.8	476.3	481.0	469.3	928.7	688.3	879.7	832.2	131	145	88	124	40	110	8	
	Percentages.																								Percentages.							
Means	11.5	9.8	11.1	9.9	12.9	12.8	12.2	16.2	3.7	.....	....	......	4.4	5.2	4.1	4.6	87.6	39.7	40.1	39.1	77.4	57.4	73.3	69.4	36.0	39.8	24.2	34.0	11.0	30.1	2.2	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.02 a. m., 2.02 p. m., and 10.2 p. m., local time.

Correction for instrumental error of barometer used: From 6.02 a. m., January 1, to 10.02 p. m., December 31, inclusive, +0.025 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.700; February, 0.700; March, 0.690; April, 0.670; May, 0.650; June, 0.640; July, 0.630; August, 0.630; September, 0.650; October, 0.670; November, 0.690; December, 0.710.

FRED. Z. GOSEWISCH,
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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

HATTERAS, N. C.

[Latitude, 35° 15′ N.; longitude, 75° 40′ W. Magnetic variation, 2° 30′ W. Elevation of barometer above sea-level, 12 feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.189	30.142	30.183	30.171	30.611	23	29.294	9	1.317	41.8	44.4	42.3	42.8	59.0	19	25.0	10, 12	34.0	48.2	37.6	3,530	3,497	3,949	10,976	42	NE.	9
Feb	30.298	30.265	30.290	30.283	30.658	2	29.956	25	.702	46.5	50.8	47.2	48.2	67.0	16	36.0	27	31.0	54.8	42.6	3,904	4,322	3,933	12,159	44	NE., SW.	{12 28
Mar	30.035	29.971	30.001	30.002	30.459	5	29.468	26	.991	44.5	50.5	46.3	47.1	67.0	19	32.0	24	35.0	54.2	40.1	4,595	4,964	5,149	14,708	60	NE.	26
Apr	30.022	29.984	30.040	30.015	30.434	4	29.523	23	.911	54.6	59.9	54.3	56.3	74.0	12	38.0	3	36.0	61.8	49.4	4,298	4,662	4,591	13,551	58	SW.	23
May	30.003	29.962	29.996	29.987	30.265	18	29.434	21	.831	63.1	68.5	62.9	64.8	79.0	30	51.0	1, 4	28.0	69.8	58.8	4,206	4,910	4,862	13,978	56	NE.	2
June	30.027	30.002	30.022	30.017	30.297	3	29.229	27	.568	74.4	79.2	73.2	75.6	90.0	25	63.0	2	27.0	80.5	70.5	3,399	3,888	4,036	11,323	40	SW.	11
July	30.053	30.028	30.048	30.043	30.304	21	29.747	24	.557	78.6	83.5	76.7	79.6	90.0	{14 20 23}	67.5	25	22.5	85.1	73.5	3,391	3,697	3,967	11,055	40	N.	10
Aug	30.014	29.994	30.016	30.008	30.180	5, 18	29.781	29	.399	75.9	80.3	74.9	77.0	92.0	1	67.0	13, 31	25.0	82.8	71.9	3,881	4,011	3,909	11,801	34	NE.	4
Sept	30.037	30.009	30.023	30.023	30.248	27	29.718	24	.530	72.1	75.8	71.6	73.2	85.0	4, 17	63.0	{8, 10 26}	22.0	78.0	68.9	3,924	4,180	4,125	12,229	48	NE.	10
Oct	30.114	30.078	30.098	30.097	30.465	17	29.713	29	.752	64.2	67.4	63.2	64.9	82.0	2	52.0	25, 27	30.0	70.3	60.1	3,100	3,447	3,208	9,755	32	NE.	2, 15
Nov	30.214	30.163	30.185	30.187	30.587	16	29.896	14	.691	54.0	59.5	54.9	56.1	77.0	11	33.0	16	44.0	63.1	49.7	2,781	2,950	2,655	8,386	46	N.	27
Dec	30.162	30.116	30.145	30.141	30.473	7	29.673	14	.800	46.0	52.2	48.8	49.3	68.0	8	30.5	18	37.5	56.4	42.8	2,301	2,257	2,075	6,633	40	NW.	28
Sums..	361.163	360.714	361.047	360.974	......	...	......	...	......	716.6	772.0	716.3	734.9	....	....	....	......	....	804.5	665.9	42,810	46,785	46,459	136,054	...	....	....
																					Averages.						
Means.	30.097	30.060	30.087	30.081	30.658	*2	29.294	†9	......	59.7	64.3	59.7	61.2	92.0	‡1	25.0	†10, 12	....	67.0	55.5	3,567.5	3,898.8	3,871.6	....	...	....	....

* February. † January. ‡ August.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	17	29	5	4	3	15	6	13	1	13.90	4.41	18, 19	6.3	6.1	5.0	5.8	39.9	40.6	39.5	40.0	92.8	87.0	90.5	90.1	5	16	10	18	1	5	0	
Feb	5	30	7	7	3	19	5	8	0	3.08	.98	24, 25	6.1	5.9	4.8	5.6	42.2	43.7	42.7	42.9	86.0	78.0	85.1	83.0	7	11	10	11	0	0	0	
Mar	7	33	2	5	3	21	11	11	0	7.60	3.55	26	5.0	5.4	5.3	5.2	38.0	40.4	39.6	39.3	78.5	70.2	78.3	75.7	9	11	11	13	0	0	0	
Apr	4	35	4	6	10	18	7	5	1	6.74	3.21	23	5.6	5.6	5.6	5.6	49.9	51.8	50.5	50.7	85.2	75.5	87.8	82.8	7	15	8	11	0	0	0	
May	10	26	4	8	10	24	5	6	0	7.81	3.56	1, 2	5.1	3.7	4.3	4.4	57.6	59.3	57.7	58.2	83.5	73.9	84.5	80.6	11	12	8	8	0	0	0	
June......	2	16	5	19	9	33	5	1	0	6.76	2.61	26, 27	5.4	4.7	3.7	4.6	70.2	71.0	70.2	70.5	87.1	76.4	90.7	84.7	6	22	2	13	0	0	0	
July	1	17	12	11	12	31	7	2	0	6.20	2.61	9, 10	4.5	3.6	3.9	4.0	71.3	72.1	70.5	71.3	79.2	69.7	81.8	76.9	9	18	4	8	0	0	0	
Aug	7	39	14	7	7	14	1	4	0	3.13	.82	16, 17	5.8	5.4	4.3	5.2	70.6	70.6	69.2	70.1	83.8	73.1	83.3	80.1	9	11	11	14	0	0	1	
Sept	8	30	11	7	5	21	4	3	1	9.89	4.00	10, 11	5.9	6.5	4.5	5.6	67.2	68.3	67.4	67.6	84.7	78.6	87.1	83.5	8	11	11	11	0	0	0	
Oct	14	47	8	6	4	5	2	7	0	3.89	.95	14, 15	7.0	6.2	4.6	5.9	61.5	62.2	60.6	61.4	91.2	84.6	91.5	89.1	4	17	10	11	0	0	0	
Nov	32	9	1	5	2	22	4	12	3	4.50	3.88	25, 26	5.3	4.5	3.6	4.5	48.0	50.2	49.4	49.2	81.1	72.5	82.7	78.8	9	16	5	5	0	0	0	
Dec	18	19	5	2	6	16	5	15	7	3.46	.88	25	6.0	5.4	3.0	4.8	42.0	45.3	43.9	43.7	82.5	78.8	83.6	81.6	8	18	5	10	0	2	0	
Sums ..	125	330	78	87	74	239	62	87	13	76.96	...	......	68.0	63.0	52.6	61.2	658.4	675.5	661.2	664.9	1,015.6	918.3	1,026.9	986.9	92	178	95	133	1	7	1	
	Percentages.																								Percentages.							
Means .	11.4	30.1	7.1	7.9	6.8	21.8	5.7	7.9	1.2	.....	.....	......	5.7	5.2	4.4	5.1	54.9	56.3	55.1	55.4	84.6	76.5	85.6	82.2	25.2	48.8	26.0	36.4	0.3	1.9	0.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.06 a. m., 3.06 p. m., and 11.06 p. m., local time.

Correction for instrumental error of barometer used: From 7.06 a. m., January 1, to 11.06 p. m., December 31, inclusive, +009 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.010: February, 0.010; March. 0.010; April, 0.010; May, 0.010; June, 0.010; July, 0.010; August, 0.010; September, 0.010; October, 0.010; November, 0.010; December, 0.010.

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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

HELENA, MONT.

[Latitude, 46° 34′ N.; longitude, 112° 4′ W. Magnetic variation, 20° 30′ E. Elevation of barometer above sea-level, 4,100 feet. Elevation of exposed thermometer above ground, 5.6 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	25.776	25.764	25.749	25.760	26.151	7	25.372	11	.779	15.2	21.6	18.7	18.5	50.0	10	−34.0	19	84.0	26.1	10.2	1,371	1,378	1,520	4,269	30	SW.	9
Feb	25.889	25.882	25.877	25.883	26.255	26	25.244	13	1.011	9.1	18.0	15.1	14.1	50.0	22	−32.0	8	82.0	23.4	5.7	541	671	805	2,017	22	SW.	22
Mar	25.831	25.799	25.818	25.816	26.229	2	25.413	17	.816	28.3	40.3	33.9	34.2	64.0	22	4.0	26	60.0	44.0	25.7	1,336	1,240	1,884	4,460	36	SW.	8, 19
Apr	25.696	25.653	25.669	25.673	26.081	24	25.154	20	.927	33.9	47.0	40.3	40.4	64.0	28	11.0	1	53.0	50.0	31.9	1,357	1,688	1,938	4,983	30	SW.	15
May	25.767	25.728	25.742	25.746	26.116	20	25.373	17	.743	42.5	57.2	49.8	49.8	72.0	20	25.0	4	47.0	59.5	40.5	1,664	1,592	2,002	5,258	21	N.	1
June	25.781	25.751	25.750	25.761	26.042	8	25.499	10	.543	54.1	69.4	61.8	61.8	94.0	29	37.0	1	57.0	71.9	51.0	1,337	1,387	1,663	4,387	48	SW.	5
July	25.871	25.837	25.848	25.852	26.020	6	25.641	14	.379	64.5	73.7	67.9	68.7	90.0	18	46.0	6	44.0	77.5	55.5	1,199	1,157	2,117	4,473	24	SW.	13 19
Aug	25.876	25.846	25.846	25.856	26.012	27	25.588	20	.424	63.9	72.5	67.2	67.9	87.0	15	38.0	22	49.0	77.5	56.3	983	884	1,342	3,209	28	NW., SW.	16 18
Sept	25.907	25.879	25.868	25.885	26.368	20	25.591	30	.777	52.8	64.5	59.2	58.8	81.0	4, 5	39.0	30	42.0	69.3	48.2	855	682	1,035	2,572	22	SW.	16
Oct	25.751	25.759	25.748	25.753	26.126	10	25.213	27	.913	34.8	41.2	38.9	38.3	68.0	4	23.0	16 23 24 31	45.0	45.8	33.7	1,043	1,074	1,231	3,348	28	SW.	28
Nov	25.730	25.711	25.732	25.724	26.215	13	25.290	22	.925	28.1	36.0	33.0	32.4	60.0	30	−14.0	25	74.0	41.7	24.2	1,041	1,026	1,244	3,311	21	NW.	20
Dec.*	25.803	25.805	25.802	25.803	26.336	31	25.169	25	1.167	26.0	29.9	27.4	27.8	52.0	16	−5.5	30	57.5	35.0	21.9	1,192	976	1,101	3,269	25	SW.	1
Sums	309.678	309.414	309.449	309.512	......	....	......	....	......	453.2	571.3	513.2	512.7	....	....	......	.....	....	621.7	404.8	13,919	13,755	17,882	45,556	....	....	....
																					Averages.						
Means	25.806	25.784	25.787	25.793	26.368	†20	25.154	‡20	......	37.8	47.6	42.8	42.7	94.0	§29	−34.0	‖19	....	51.8	33.7	1,160.0	1,146.2	1,490.2	......	....	....	....

* One 7 a. m. observation missed. † September. ‡ April. § June. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 8 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1888.										*In.*	*In.*						°	°	°	°												
Jan	0	0	1	0	0	60	1	5	26	0.57	0.12	6, 7	6.5	7.8	6.6	7.0	12.5	17.5	14.9	15.0	89.6	84.9	85.4	86.6	2	15	14	12	13	28	0	
Feb	0	0	0	0	0	85	2	6	41	0.73	0.30	14	4.3	5.6	4.1	4.7	6.7	14.5	12.4	11.2	90.5	87.4	89.7	89.2	9	13	6	9	14	25	0	
Mar	0	0	2	0	0	68	1	2	20	0.73	0.41	26, 27	3.8	5.6	4.3	4.6	24.3	34.1	28.9	29.1	85.5	78.9	82.5	82.3	12	12	7	11	7	22	0	
Apr	3	4	0	3	3	54	5	4	14	0.53	0.20	23	5.9	5.7	4.2	5.3	27.0	38.1	33.0	32.7	76.0	72.5	74.1	74.2	4	21	5	9	1	12	0	
May	1	0	4	1	1	61	14	5	6	1.54	0.48	1	4.7	5.9	5.5	5.4	32.7	44.2	39.2	38.7	68.6	63.2	68.2	66.7	9	13	9	9	0	5	0	
June	1	7	1	0	2	64	6	1	8	1.74	0.50	7	3.3	4.4	3.5	3.7	42.9	55.8	50.5	49.7	67.0	63.6	66.6	65.7	11	15	4	9	0	0	4	
July	1	1	2	0	9	68	6	6	0	0.32	0.27	29	0.9	4.3	2.6	2.6	52.3	58.8	55.0	55.4	65.0	60.6	64.8	63.5	20	10	1	2	0	0	0	
Aug	10	17	11	0	0	42	4	9	0	(1)	(1)	(1)	2.2	4.0	2.4	2.9	47.6	47.6	47.3	47.5	56.1	42.9	50.6	49.9	17	11	3	....	0	0	0	
Sept	23	32	0	0	0	24	4	7	0	(1)	(1)	(1)	2.0	3.0	1.8	2.3	37.5	42.1	41.9	40.5	57.3	45.5	53.9	52.2	18	10	2	....	0	0	0	
Oct	24	13	2	6	3	29	2	14	0	(1)	(1)	(1)	5.9	6.9	5.8	6.2	29.4	34.0	32.6	32.0	80.1	76.3	78.5	78.3	3	17	11	....	0	11	0	
Nov	28	10	2	2	1	44	1	2	0	0.66	0.27	24	4.0	5.0	2.9	4.0	20.1	23.8	22.6	22.2	72.3	62.5	66.0	66.9	14	11	5	6	3	20	0	
Dec.[2]	34	9	0	0	0	15	16	10	8	1.02	0.48	25, 26	3.4	5.7	4.5	4.5	18.2	19.3	17.9	18.5	71.2	64.5	67.0	67.6	11	12	7	7	9	27	0	
Sums	125	98	25	12	19	564	62	71	128	.....	.....	.....	46.9	63.9	48.2	53.2	351.2	429.8	396.2	392.5	879.2	802.8	847.3	843.1	130	160	74	....	47	151	4	
	Percentages.																								Percentages.							
Means	11.4	8.5	2.3	1.1	1.7	51.6	5.7	6.5	11.2	.....	.....	.....	3.9	5.3	4.0	4.4	29.3	35.8	33.0	32.7	73.3	66.9	70.6	70.3	35.7	43.8	20.3	....	12.9	41.4	1.1	

[1] Gauge unserviceable.

[2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.40 a. m., 12.40 p. m., and 8.40 p. m., local time.

Correction for instrumental error of barometer used: From 4.40 a. m., January 1, to 8.40 p. m., December 31, inclusive, +.007 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 4.430; February, 4.400; March, 4.370; April, 4.260; May, 4.170; June, 4.120; July, 4.060; August, 4.090; September, 4.170; October, 4.300; November, 4.380; December, 4.280.

SAMUEL W. MORRISON,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

HURON, DAK.

[Latitude, 44° 21′ N.; longitude, 98° 9′ W. Magnetic variation, 14° E. Elevation of barometer above sea-level, 1,305 feet. Elevation of exposed thermometer above ground, 18 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only). Washington time. 7 a. m.	Barometer 3 p. m.	Barometer 11 p. m.	Barometer Monthly mean.	Barometer Highest.	Barometer Date.	Barometer Lowest.	Barometer Date.	Barometer Range.	Temperature. Washington time. 7 a. m.	Temperature 3 p. m.	Temperature 11 p. m.	Temperature Monthly mean.	Self-registering thermometer. Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	Wind. Washington time. 11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Maximum hourly velocity during month. Miles.	Direction from—	Date.
1882.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28.714	28.688	28.725	28.709	29.164	3	27.939	12	1.225	— 0.9	8.3	1.4	2.9	45.0	9	—30.8	20	75.8	12.8	—10.5	2,578	2,664	2,775	8,017	40	NW.	29 30
Feb	28.824	28.794	28.823	28.814	29.297	17	28.108	15	1.189	6.6	20.5	11.8	13.0	48.0	28	—31.8	4	79.8	24.2	zero.	2,033	2,418	2,097	6,543	28	NW.	16
Mar	28.709	28.691	28.701	28.700	29.319	2	27.984	17	1.335	22.0	33.0	27.5	27.5	70.5	17	— 7.8	18	78.3	38.2	18.5	2,188	2,771	2,434	7,393	44	NW.	9
Apr	28.506	28.480	28.499	28.495	29.122	21	27.891	21	1.231	36.5	53.4	44.3	44.7	79.3	20	23.5	5	55.8	57.1	34.4	2,499	2,961	2,883	8,343	48	E.	21
May	28.550	28.522	28.538	28.537	28.897	10	27.708	18	1.189	44.2	57.5	49.6	50.4	78.8	31	32.0	10	46.8	61.3	41.6	2,565	3,273	3,106	8,944	41	E.	9, 13
June	28.550	28.538	28.545	28.544	28.773	24	28.187	11	0.586	57.5	73.4	63.2	64.7	94.1	30	34.0	3	60.1	77.4	52.8	1,936	2,523	2,280	6,739	36	NE. NW.	17 22 23
July	28.595	28.575	28.565	28.578	28.905	28	28.165	15	0.740	60.9	77.3	67.8	68.7	99.2	1	46.0	17	53.2	81.5	58.2	1,768	2,480	2,011	6,259	34	NW.	16
Aug	28.646	28.626	28.628	28.633	28.872	28	28.092	21	0.780	58.6	76.2	65.3	66.7	90.6	16	42.7	23	47.9	79.3	56.5	1,881	2,374	2,165	6,420	29	NW.	19
Sept	28.699	28.668	28.683	28.683	29.023	2	28.358	12	0.665	47.9	66.2	54.5	56.2	88.0	11	28.2	30	59.8	69.1	45.8	2,381	2,810	2,467	7,658	40	SE. NW.	18 21
Oct	28.652	28.627	28.656	28.645	29.161	19	28.005	17	1.156	38.1	50.5	43.0	43.9	76.8	6	21.8	20	55.0	53.4	35.4	2,007	2,630	2,316	6,953	32	W.	29
Nov	28.612	28.577	28.590	28.593	29.210	15 28	28.108	25	1.102	24.3	40.4	29.4	31.4	62.4	2	— 4.3	15	66.7	45.6	18.3	2,149	2,755	2,425	7,329	36	NW.	13
Dec	28.673	28.658	28.694	28.675	29.257	31	27.885	17	1.372	13.3	25.8	15.9	18.3	57.0	4	—20.5	27	77.5	31.1	7.0	2,094	2,436	2,411	6,971	34	NW.	17
Sums	343.730	343.444	343.647	343.606	......	....	......	....	......	409.0	582.5	473.7	488.4	....	....	......	....	....	631.0	358.0	26,079	32,090	29,400	87,569	....	....	....
																					Averages.						
Means	28.644	28.620	28.637	28.634	29.319	*2	27.708	†18	......	34.1	48.5	39.5	40.7	99.2	‡1	—31.8	§4	....	52.6	29.8	2,173.2	2,674.2	2,450.0	......	....	....	....

* March. † May. ‡ July. § February.

Month	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	7	1	1	26	3	1	2	52	0	0.17	0.07	18	4.2	6.2	3.5	4.6	—12.0	—4.6	—11.0	—9.2	57.1	56.0	56.7	56.6	7	19	5	5	28	31	0	
Feb	3	0	1	22	9	10	8	31	0	0.47	0.13	14	4.6	5.3	4.0	4.6	—2.1	10.5	3.3	3.9	61.7	61.6	62.2	61.8	11	9	8	10	17	28	0	
Mar	15	12	7	15	5	5	2	31	1	0.42	0.17	28	5.5	6.2	5.5	5.7	12.1	19.1	18.5	16.6	64.6	57.3	67.9	63.3	6	14	11	9	6	31	0	
Apr	15	12	9	20	3	3	4	24	0	2.14	0.99	21, 22	6.1	6.3	3.9	5.4	29.4	36.0	35.8	33.7	75.2	54.7	72.2	67.4	6	16	8	10	0	12	0	
May	15	10	12	18	2	3	5	28	0	4.45	1.33	13, 14	5.9	7.4	4.8	6.0	38.2	42.9	43.8	41.6	79.6	61.1	80.8	73.8	7	12	12	13	0	0	0	
June	18	4	4	21	14	7	5	17	0	4.33	2.10	17	3.8	5.2	3.4	4.1	50.2	55.5	56.8	54.2	77.5	54.5	79.7	70.6	12	15	3	12	0	0	3	
July	8	10	15	14	18	6	7	15	0	5.20	2.21	5, 6	5.2	5.3	4.2	4.9	56.7	61.3	62.1	60.0	86.3	58.9	82.3	75.8	8	17	6	10	0	0	3	
Aug	9	1	14	34	13	6	4	12	0	1.77	0.94	6, 7	4.8	4.2	4.3	4.4	55.0	61.2	60.3	58.8	88.3	61.9	84.0	78.1	12	12	7	12	0	0	2	
Sept	19	6	7	22	10	3	2	20	1	1.68	0.84	21, 22	5.2	4.6	3.1	4.3	43.7	49.0	46.5	46.4	85.5	56.3	74.4	72.1	11	15	4	8	0	2	0	1st killing frost 8th.
Oct	5	9	3	35	3	4	14	20	0	1.96	0.68	16, 17	6.6	7.1	6.1	6.6	33.3	34.5	35.2	34.3	82.5	59.4	74.8	72.2	3	14	14	15	0	9	0	
Nov	9	1	2	28	9	9	4	28	0	0.05	0.05	4, 5	4.1	3.9	2.8	3.6	16.4	23.0	20.2	19.9	71.7	51.7	68.6	64.0	16	10	4	2	5	28	0	
Dec	14	4	2	19	7	3	8	34	2	0.61	0.36	6	3.6	5.3	3.7	4.2	6.3	12.1	7.7	8.7	73.3	57.5	69.9	66.9	11	15	5	9	14	31	0	
Sums	137	70	77	274	96	60	65	312	4	23.25	......	......	59.6	67.0	49.3	58.4	327.2	400.5	379.2	368.9	903.3	690.9	873.5	822.6	110	168	87	115	70	172	8	
	Percentages.																								Percentages.							
Means	12.5	6.4	7.0	25.0	8.8	5.5	5.9	28.5	0.4	......	......	......	5.0	5.6	4.1	4.9	27.3	33.4	31.6	30.8	75.3	57.6	72.8	68.6	30.0	46.0	23.8	31.5	19.2	47.1	2.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 5.35 a. m., 1.35 p. m., and 9.35 p. m., local time.

Correction for instrumental error of barometer used: From 5.35 a. m., January 1, to 9.35 p. m., December 31, inclusive, +0.010 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.540; February, 1.520; March, 1.480; April, 1.450; May, 1.350; June, 1.340; July, 1.320; August, 1.340; September, 1.380; October, 1.430; November, 1.480; December, 1.540.

SAMUEL W. GLENN,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

INDIANAPOLIS, IND.

[Latitude, 39° 46′ N.; longitude, 86° 10′ W. Magnetic variation, 4° 45′ E. Elevation of barometer above sea-level, 758 feet. Elevation of exposed thermometer above ground, 52 feet. Elevation of rain-gauge above ground, 74 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.320	29.294	29.321	29.312	29.791	22	28.664	10	1.127	21.6	28.2	23.6	24.5	45.0	17	—11.0	22	56.0	30.7	16.3	1,574	1,787	1,733	5,094	30	W.	31
Feb.[1]	29.446	29.405	29.417	29.423	29.883	18	28.887	24	.996	26.7	36.7	32.6	32.0	72.0	16	4.0	1	68.0	41.0	22.1	1,246	1,369	1,176	[2]3,791	21	NW.	26
Mar	29.222	29.189	29.209	29.207	29.693	8	28.752	10	.941	30.8	42.1	35.3	36.1	68.4	18	12.0	20	56.4	45.1	27.0	1,397	2,058	1,835	5,290	24	NW.	6
Apr	29.155	29.120	29.130	29.135	29.498	3	28.736	22	.762	47.1	60.0	52.9	53.3	85.3	14	30.4	24	54.9	63.0	43.9	1,427	1,910	1,604	4,941	26	SW.	15
May	29.158	29.120	29.143	29.140	29.517	6	28.695	14	.822	55.8	67.5	59.4	60.9	82.8	9	35.0	22	47.8	70.2	50.9	1,217	1,946	1,699	4,862	23	W.	10
June ..	29.161	29.123	29.140	29.141	29.513	1	28.748	10	.765	67.0	77.9	69.6	71.5	89.0	17	50.0	1	39.0	79.7	62.5	939	1,583	1,451	3,973	22	W.	10
July ...	29.251	29.219	29.226	29.232	29.523	18	28.907	12	.616	70.7	81.6	72.9	75.1	92.0	3	56.8	31	35.2	83.4	65.7	727	1,376	1,191	3,294	32	NW.	12
Aug	29.288	29.255	29.268	29.270	29.489	6	29.064	1	.425	64.0	78.4	68.9	70.4	91.0	19, 22	53.0	7	38.0	78.9	60.8	519	1,092	934	2,545	26	W.	22
Sept ...	29.280	29.231	29.249	29.253	29.595	9	28.895	24	.700	56.2	71.6	61.8	63.2	87.0	2	40.4	26	46.6	72.9	54.0	498	737	605	1,840	16	W.	30
Oct	29.285	29.270	29.285	29.280	29.694	16	28.626	29	1.068	50.7	59.5	54.2	54.8	81.0	9	35.0	16	46.0	61.0	48.2	641	1,074	729	2,444	20	NW.	31
Nov	29.330	29.298	29.306	29.311	29.864	16	28.819	21	1.045	40.7	50.2	44.2	45.0	65.0	9, 20, 22	10.0	16	55.0	52.7	37.1	1,226	1,592	1,459	4,277	28	NW.	26
Dec	29.281	29.258	29.288	29.276	29.620	22	28.725	16	.901	30.7	38.6	33.9	34.4	62.0	6	9.0	17	53.0	42.2	26.3	1,331	1,778	1,467	4,576	24	NW.	27
Sums..	351.177	350.782	350.982	350.980	......	....	......	....	......	562.0	692.3	609.3	621.2	....	......	......	....	....	720.8	514.8	12,742	18,302	15,883	46,927	....	....	....
																					Averages.						
Means.	29.265	29.232	29.248	29.248	29.883	[3]18	28.626	[4]29	......	46.8	57.7	50.8	51.8	92.0	[5]3	—11.0	[6]22	....	60.1	42.9	1,061.8	1,525.2	1,323.6	......	....	....	....

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[1] One 4 p. m. observation missed.

[2] For 26½ days.

[3] February.

[4] October.

[5] July.

[6] January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness in tenths.				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	12	7	9	9	12	20	16	0	1.32	.30	10	8.1	6.2	6.5	6.9	15.9	19.2	17.0	17.4	78.0	68.1	75.3	73.8	5	8	18	14	16	30	0	
Feb.[1]	14	4	8	8	3	19	9	15	3	7.19	2.80	8, 4	5.7	6.3	6.0	6.0	20.6	25.2	26.0	23.9	77.3	63.4	70.4	72.4	6	10	11	14	7	22	0	
Mar ...	13	15	9	5	5	16	12	15	3	3.25	1.52	29, 30	4.4	5.9	4.5	4.9	22.7	22.8	25.0	23.5	71.4	48.8	66.7	62.3	6	18	7	11	2	21	0	
Apr	10	14	6	11	16	14	8	7	4	2.73	.88	22, 23	5.7	6.3	4.8	5.6	38.0	38.0	40.0	38.7	71.7	46.9	62.9	60.5	7	13	10	15	0	4	0	
May	10	4	4	10	14	21	8	21	1	4.02	1.13	14	6.4	6.4	4.4	5.7	45.9	46.6	47.1	46.5	70.3	49.4	65.3	61.7	8	12	11	14	0	0	0	
June.....	11	4	1	12	16	18	16	11	1	4.59	1.59	6	6.0	7.2	4.5	5.9	58.2	59.1	59.5	58.9	73.7	54.5	71.3	66.5	6	14	10	19	0	0	0	
July....	6	7	2	2	17	29	10	11	9	6.12	1.44	12, 13	4.1	5.9	3.3	4.4	61.4	60.9	63.3	61.9	73.2	50.9	72.3	65.5	10	15	6	13	0	0	4	
Aug	14	19	11	4	4	9	7	8	17	2.48	1.46	23	4.4	5.8	3.1	4.4	55.9	55.8	58.7	56.8	75.5	46.7	70.5	64.2	11	15	5	11	0	0	2	
Sept	9	22	9	3	10	7	10	3	17	2.72	1.11	23, 24	4.6	4.2	2.3	3.7	49.0	50.8	51.7	50.5	77.6	50.4	70.2	66.1	14	12	4	10	0	0	0	
Oct	6	12	11	12	13	6	9	4	20	8.56	1.90	28, 29	6.8	7.6	4.8	6.4	44.4	44.3	44.9	44.5	79.7	60.1	71.8	70.5	6	13	12	14	0	0	0	
Nov	3	6	2	2	28	15	8	17	9	6.80	3.71	21	5.1	4.7	3.7	4.5	32.8	31.1	31.9	31.9	73.8	50.2	62.8	62.3	9	15	6	13	2	11	0	
Dec......	6	6	2	4	25	15	13	20	2	4.34	1.32	22, 23	6.1	6.1	5.5	5.9	23.8	25.4	24.4	24.5	75.8	60.4	68.2	68.1	8	12	11	16	8	18	0	
Sums ..	110	125	72	82	160	181	130	148	86	54.12	....	......	67.4	72.6	53.4	64.3	468.6	479.2	489.5	479.0	898.0	649.8	833.7	793.9	96	157	111	164	35	106	6	
	Percentages.																								Percentages.							
Means	10.1	11.4	6.6	7.5	14.6	16.5	11.9	13.5	7.9	.....	....	......	5.6	6.0	4.4	5.3	39.0	39.9	40.8	39.9	74.8	54.2	69.5	66.2	26.4	43.1	30.5	44.9	9.6	29.0	1.6	

[1] One 4 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.24 a. m., 2.24 p. m., and 10.24 p. m., local time.

Correction for instrumental error of barometer used: From 6.24 a. m., January 1, to 10.24 p. m., December 31, inclusive, +0.013 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.840; February, 0.850; March, 0.840; April, 0.820; May, 0.790; June, 0.780; July, 0.770; August, 0.770; September, 0.780; October, 0.800; November, 0.840; December, 0.850.

C. F. R. WAPPENHANS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

INDIANOLA, TEX.

[Latitude, 28° 32′ N.; longitude, 96° 31′ W. Magnetic variation, 8° 30′ E. Elevation of barometer above sea-level, 26 feet. Elevation of exposed thermometer above ground, 29 feet. Elevation of rain-gauge above ground, 40 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	8 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	8 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 8 p. m.	8 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In.		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles.	Miles.			
Jan.*	30.123	30.114	30.153	30.130	30.643	22	29.872	18	.771	46.7	52.5	48.8	49.2	74.5	26	18.0	21	56.5	57.2	40.5	3,453	3,704	3,872	11,029	59	N.	8
Feb	30.164	30.164	30.188	30.172	30.662	27	29.671	23	.991	50.6	58.1	53.4	54.0	77.1	12	21.5	5	55.6	60.8	45.4	3,426	3,576	3,540	10,542	60	N.	17
Mar	30.012	30.010	30.026	30.016	30.451	1	29.581	24	.870	61.1	67.4	63.4	64.0	77.8	25	41.3	8	36.5	70.3	57.3	2,916	3,575	3,310	9,801	54	NE.	7
Apr	29.894	29.889	29.898	29.894	30.449	16	29.416	21	1.033	67.7	75.6	70.5	71.3	85.7	21	57.1	2	28.6	77.5	65.2	3,886	3,937	3,899	11,722	56	NW.	28
May	29.936	29.951	29.956	29.948	30.195	6	29.737	29	.458	72.9	80.4	75.3	76.2	91.0	30	62.3	21	28.7	82.5	70.3	3,105	3,844	3,889	10.838	49	NW.	20
June	29.942	29.948	29.942	29.944	30.065	30	29.671	9	.394	78.9	87.0	80.8	82.1	94.9	21	69.1	6, 28	25.8	89.5	76.5	2,154	2,751	2,948	7,853	31	SW.	28
July	30.043	30.045	30.046	30.045	30.237	18	29.869	13	.368	79.3	87.6	80.6	82.5	95.1	31	73.7	4	21.4	90.4	77.3	2,087	2,805	3,016	7,908	27	S.	14
Aug	30.010	29.996	30.008	30.005	30.154	15	29.847	11	.807	79.2	90.2	81.4	83.6	96.0	16	72.4	30	23.6	92.4	77.9	1,766	2,195	2,749	6,710	43	NE.	17
Sept	30.012	30.002	30.017	30.010	30.195	26	29.850	13	.345	75.0	81.8	77.8	78.2	90.0	1	61.2	23	28.8	83.8	72.4	2,376	2,626	2,705	7,707	45	E.	5
Oct	29.988	29.970	29.996	29.985	30.272	31	29.725	28	.547	74.0	80.7	75.8	76.8	89.8	7	51.8	25	38.0	83.1	71.4	3,162	3,538	3,556	10,256	38	N.	18 25
Nov	30.097	30.069	30.112	30.093	30.561	16	29.716	10	.845	63.1	70.1	65.7	66.3	82.2	5, 9, 10	42.2	15	40.0	72.8	59.9	3,395	3,534	3,430	10,359	46	N.	26
Dec	30.116	30.093	30.136	30.115	30.686	15	29.818	18	.868	56.2	63.9	58.5	59.5	78.1	6	35.7	16	42.4	65.9	52.9	3,158	3,632	3,536	10,326	36	N.	8, 31
Sums	360.337	360.251	360.478	360.357	......	...	......	...	......	804.7	895.3	831.0	843.7	....	......	....	.....	....	925.7	767.0	34,884	39,717	40,450	115,051	....	....	....
																					Averages.						
Means	30.028	30.021	30.040	30.030	30.686	†15	29.416	‡21	......	67.1	74.6	69.2	70.3	96.0	§16	18.0	‖21	....	77.1	63.9	2,907	3,310	3,371	......	....	....	....

* One 7 a. m. observation missed. † December. ‡ April. § August. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan.[1]	36	7	16	6	15	3	2	5	2	0.97	0.32	12	5.7	5.4	3.3	4.8	43.1	44.5	44.3	44.0	87.6	76.4	86.5	83.5	8	16	7	11	2	6	0	
Feb	26	9	10	17	14	2	0	4	2	0.81	0.30	17,18	6.8	7.1	6.0	6.6	47.0	51.5	49.0	49.2	88.2	79.8	86.4	84.8	8	14	11	13	2	6	0	
Mar	9	9	19	13	24	2	3	2	12	5.38	2.24	13	5.8	6.0	3.6	5.1	57.9	59.0	58.5	58.5	89.5	74.9	84.5	83.0	5	20	6	7	0	0	0	
Apr	17	10	11	17	32	1	0	2	0	1.99	1.09	8	5.8	5.7	4.6	5.4	62.7	63.6	63.9	63.4	84.7	68.8	81.3	78.3	4	19	7	7	0	0	0	
May	7	7	11	31	33	0	2	1	1	3.59	2.02	20	4.7	5.2	3.6	4.5	67.7	67.8	68.2	67.9	84.4	66.9	79.5	76.9	8	22	1	3	0	0	1	
June	0	1	10	26	48	1	0	1	3	1.72	0.51	6	3.5	5.1	2.4	3.7	75.4	74.6	74.8	74.9	89.6	66.8	83.5	80.0	10	19	1	6	0	0	16	
July	0	2	7	25	50	4	0	1	4	0.61	0.37	4,5	3.3	4.0	1.3	2.9	75.2	73.5	75.1	74.6	88.2	64.0	83.9	78.7	19	11	1	5	0	0	22	
Aug	6	3	13	18	40	7	1	1	4	0.32	0.20	24	3.0	3.4	0.8	2.4	74.8	72.1	74.5	73.8	86.8	56.5	79.8	74.4	21	10	0	4	0	0	25	
Sept	12	9	24	15	17	3	3	3	4	9.86	4.30	4,5	4.6	4.0	3.1	3.9	70.5	70.2	71.6	70.8	86.6	69.3	82.2	79.4	12	12	6	11	0	0	0	
Oct	11	9	16	22	28	3	0	1	3	2.46	0.76	22,23	4.8	5.0	2.6	4.1	70.5	70.2	70.6	70.4	89.5	71.8	84.8	82.0	9	20	2	13	0	0	0	
Nov	17	21	12	15	20	1	0	3	1	1.21	0.53	14,15	5.1	5.3	3.9	4.8	58.4	60.8	59.0	59.2	85.4	72.6	80.8	79.6	10	12	8	10	0	0	0	
Dec	27	8	12	8	21	6	4	5	2	1.77	0.86	11,12	4.2	6.4	4.2	4.9	52.0	54.5	53.2	53.2	86.4	73.8	83.8	81.3	12	10	9	9	0	0	0	
Sums ..	168	95	161	213	342	33	15	29	38	30.69	...	......	57.3	62.2	39.4	53.1	755.2	761.8	762.7	759.9	1,046.9	841.6	997.0	961.9	121	185	59	99	4	12	64	
	Percentages.																								Percentages.							
Means .	15.4	8.7	14.7	19.5	31.3	3.0	1.4	2.6	3.5	......	......	......	4.8	5.2	3.3	4.4	62.9	63.5	63.6	63.3	87.2	70.1	83.1	80.1	33.2	50.8	16.2	27.1	1.1	3.3	17.5	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 5.42 a. m., 1.42 p. m., and 9.42 p. m., local time.

Correction for instrumental error of barometer used: From 5.42 a. m., January 1, to 9.42 p. m., December 31, inclusive, —.024 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.030; February, 0.030; March, 0.030; April, 0.030; May, 0.030; June, 0.030; July, 0.030; August, 0.030; September, 0.030; October, 0.030; November, 0.030; December, 0.030.

ISAAC A. REED,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

JACKSONVILLE, FLA.

[Latitude, 30° 20′ N.; longitude, 81° 39′ W. Magnetic variation, 3° E. Elevation of barometer above sea-level, 43 feet. Elevation of exposed thermometer above ground, 37 feet. Elevation of rain-gauge above ground, 57 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.162	30.113	30.162	30.146	30.647	23	29.560	9	1.087	53.5	64.2	56.0	57.9	76.0	21	29.0	12	47.0	65.5	51.0	458	746	649	1,853	28	SW.	9
Feb	30.242	30.189	30.243	30.225	30.545	28	30.035	15	0.510	58.9	71.9	62.1	64.3	83.0	18	40.0	28	43.0	73.1	57.4	368	607	518	1,493	19	NE.	2
Mar	30.055	29.986	30.027	30.023	30.434	1	29.612	25	0.822	54.3	67.6	59.2	60.4	79.0	30 31	40.0	13	39.0	69.1	52.1	1,263	1,786	1,718	4,767	28	S.	19
Apr	29.994	29.950	29.988	29.977	30.268	3	29.667	28	0.601	66.8	75.4	68.1	70.1	88.0	22	52.0	3	36.0	78.1	64.0	1,168	1,801	1,418	4,387	34	W.	23
May	30.021	29.967	30.005	29.998	30.189	25	29.548	21	0.641	70.8	80.5	70.5	73.9	89.5	13	54.0	23	35.5	82.1	65.6	1,082	1,381	1,481	3,944	16	SW.	26
June	30.025	29.985	30.021	30.010	30.177	4	29.809	26	0.368	79.5	85.7	77.4	80.9	95.0	21	68.0	3	27.0	88.9	74.8	1,478	1,816	2,022	5,316	40	W.	22
July	30.082	30.033	30.068	30.061	30.272	22	29.884	13	0.388	81.6	90.3	80.5	84.1	98.0	16	69.5	19	28.5	92.2	76.7	1,641	1,859	2,188	5,688	36	SW.	28
Aug	30.016	29.975	30.018	30.003	30.171	14	29.800	29	0.371	77.3	87.5	77.5	80.8	94.5	20 21	70.5	23	24.0	89.7	73.9	1,004	1,358	1,682	4,044	32	W.	18
Sept	30.005	29.965	30.000	29.990	30.187	28	29.776	21	0.411	71.5	83.2	74.7	76.5	90.5	30	62.5	26	28.0	84.6	69.9	1,133	1,780	1,683	4,596	32	SE.	13
Oct	30.047	30.007	30.041	30.032	30.204	17	29.830	12	0.374	70.6	79.6	72.4	74.2	92.0	4	59.0	25	33.0	81.9	68.8	1,407	2,083	1,791	5,281	20	E., SE.	17 18 19
Nov	30.161	30.116	30.150	30.142	30.401	17	29.926	14	0.475	57.9	70.4	61.5	63.3	83.0	11	43.0	30	40.0	71.8	56.4	1,172	1,700	1,322	4,194	23	NW.	16
Dec	30.161	30.105	30.144	30.137	30.271	22	29.889	14	0.382	53.8	69.2	58.4	60.5	78.0	31	30.5	16	47.5	70.2	52.6	861	1,387	1,195	3,443	24	SW.	14
Sums..	360.971	360.391	360.867	360.744	......	...	......	....	......	796.5	925.5	818.3	846.9	....	....	....	....	....	947.2	763.2	13,035	18,304	17,667	49,006	....	....	....
																					Averages.						
Means.	30.081	30.033	30.072	30.062	30.647	*23	29.548	†21	......	66.4	77.1	68.2	70.6	98.0	‡16	29.0	*12	....	78.9	63.6	1,086.2	1,525.3	1,472.2	......	....	....	....

* January. † May. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	3	14	0	3	13	11	7	7	35	4.77	1.35	7, 8	5.8	6.1	4.4	5.4	49.6	52.5	50.8	51.0	87.3	67.6	82.8	79.2	8	13	10	9	0	1	0	
Feb	10	13	2	6	6	5	2	3	37	0.48	0.25	12, 13	4.3	5.0	3.6	4.3	54.7	56.0	56.9	55.9	87.6	60.2	83.6	77.1	11	13	4	8	0	0	0	
Mar	4	12	4	9	6	18	17	15	8	3.84	2.34	25	4.0	5.0	2.7	3.9	47.0	45.7	48.7	47.1	77.2	49.4	69.9	65.5	13	14	4	8	0	0	0	
Apr	5	25	8	11	15	13	3	4	6	4.48	2.17	23	6.1	6.5	3.2	5.3	61.4	58.9	61.5	60.6	83.6	59.8	80.8	74.7	5	20	5	9	0	0	0	
May	3	17	11	18	8	13	10	6	7	3.16	0.92	30	3.8	4.7	3.0	3.8	61.9	59.7	62.2	61.3	74.1	50.5	75.8	66.8	12	14	5	7	0	0	0	
June	0	7	16	9	14	34	5	4	1	7.05	1.17	25, 26	4.1	7.5	5.8	5.8	72.7	71.7	72.1	72.2	79.9	63.7	84.1	75.9	5	17	8	19	0	0	10	
July	0	3	10	16	12	45	2	4	1	6.88	1.65	8	2.6	5.2	2.9	3.6	74.3	72.6	73.8	73.6	78.7	57.1	80.2	72.0	13	17	1	12	0	0	20	
Aug	3	19	7	21	4	19	12	7	1	7.63	2.59	25, 26	2.8	5.0	4.1	4.0	72.6	70.4	72.6	71.9	85.5	58.7	85.1	76.4	11	15	5	12	0	0	18	
Sept	11	25	16	19	7	4	2	5	1	7.28	2.44	17	3.0	5.6	2.6	4.0	67.6	67.4	69.6	68.2	88.3	60.0	84.6	77.6	13	12	5	8	0	0	1	
Oct	18	36	10	3	8	9	1	7	1	7.26	4.23	16, 17	4.3	5.8	3.3	4.5	66.6	66.0	67.7	66.8	88.5	64.9	85.6	79.7	12	12	7	7	0	0	3	
Nov	21	20	8	17	3	2	2	8	9	0.09	0.09	19, 20	4.1	5.4	3.0	4.2	52.6	54.8	54.7	54.0	83.5	60.7	80.7	75.0	14	10	6	2	0	0	0	
Dec	13	15	2	7	13	9	10	9	15	0.42	0.42	25	3.5	3.9	2.8	3.2	50.6	53.2	54.0	32.6	89.2	58.1	86.1	77.8	15	15	1	1	0	1	0	
Sums	91	206	94	139	109	182	73	79	122	53.34	....	......	49.3	65.7	40.9	52.0	731.6	728.9	744.6	735.2	1003.4	710.7	979.8	897.7	132	172	61	102	0	2	52	
	Percentages.																								Percentages.							
Means	8.3	18.8	8.6	12.7	10.0	16.6	6.7	7.2	11.1	.....	....	......	4.1	5.5	3.4	4.3	61.0	60.7	62.0	61.2	83.0	59.2	81.6	74.8	36.2	47.1	16.7	27.9	0	0.5	14.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.42 a. m., 2.42 p. m., and 10.42 p. m., local time.

Correction for instrumental error of barometer used: From 6.42 a. m., January 1, to 10.42 p. m., December 31, 0.000 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.050; February, 0.050; March, 0.050; April, 0.040; May, 0.040; June, 0.040; July, 0.040; August, 0.040; September, 0.040; October, 0.040; November, 0.050; December, 0.050.

J. W. SMITH,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

GRANT, FORT, ARIZ.

[Latitude, 32° 39′ N.; longitude, 109° 57′ W. Magnetic variation, 13° E. Elevation of barometer above sea-level, 4,860 (B) feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	25.280	25.234	25.252	25.255	25.521	23	24.894	19	.627	31.5	48.9	41.0	40.5	64.6	31	10.0	21	54.6	51.6	30.1	1,410	1,092	1,649	4,151	29	NW.	19
Feb	25.244	25.201	25.233	25.226	25.540	17	24.917	15	.623	35.4	51.4	44.8	43.9	65.8	1	17.0	18	48.8	54.0	33.7	1,992	2,134	2,269	6,395	48	SE.	19
Mar	25.216	25.187	25.192	25.198	25.391	1	24.984	23	.407	43.5	60.9	52.2	52.2	75.9	27	37.0	25	38.9	63.8	42.9	1,359	1,438	2,168	4,965	28	NW.	18
Apr	25.162	25.126	25.136	25.141	25.528	15	24.889	20	.639	44.9	66.4	55.9	55.7	78.4	19	32.0	14	46.4	60.3	43.5	1,618	1,917	3,168	6,733	36	W.	20
May	25.215	25.175	25.165	25.185	25.370	20	25.064	7, 16	.306	54.1	74.9	64.6	64.5	89.9	27	39.0	8	50.9	78.1	52.5	1,650	1,685	2,618	5,953	32	SW.	7
June*	25.226	25.195	25.173	25.198	25.304	2	25.056	9	.248	66.5	87.3	79.3	77.7	101.5	25	54.0	2	47.5	91.7	64.7	1,519	1,246	2,530	5,295	29	SE.	28
July	......	......	......	......	......	...	......	...	......	66.8	82.8	75.6	75.1	95.4	17	61.3	29	34.1	87.4	65.6	1,378	1,325	2,053	4,756	32	E.	8
Aug.†	25.357	25.323	25.322	25.334	25.515	28	25.255	31	.260	66.1	81.5	73.8	73.8	91.2	31	61.2	6	30.0	85.5	64.9	1,270	987	1,468	3,725	20	E., NE.	15 19
Sept	25.274	25.262	25.265	25.267	25.426	20	25.078	13	.348	63.5	79.2	72.4	71.7	91.7	1	51.0	22	40.7	82.9	61.8	1,711	1,945	2,226	5,882	30	SE.	21
Oct	25.206	25.182	25.199	25.196	25.385	31	24.972	27	.413	50.1	66.3	58.1	58.2	83.3	2	36.4	29	46.9	69.9	48.7	1,110	1,204	1,733	4,047	22	W.	23
Nov	25.258	25.232	25.250	25.247	25.491	12	24.996	9	.495	41.8	57.9	50.3	50.0	67.3	2	28.3	21	39.0	61.1	40.4	1,572	1,387	1,900	4,859	33	SE.	29
Dec	25.271	25.242	25.274	25.262	25.498	8	25.038	4	.460	38.5	52.0	44.7	45.1	65.0	1	23.6	31	41.4	55.0	37.2	1,882	1,952	2,263	6,097	34	SE.	11
Sums	......	......	......	......	......	...	......	...	......	602.7	809.5	712.7	708.4	.....	...	....	....	....	850.8	586.0	18,501	18,312	26,045	62,858	....	....	....
																					Averages.						
Means	......	......	......	......	......	...	......	...	......	50.2	67.5	59.4	59.0	101.5	‡25	10.0	§21	....	70.9	48.8	1,541.8	1,526.0	2,170.4	......	....	....	....

(B) Elevation determined by barometer.

* Eleven 7 a. m., twelve 3 p. m., twelve 11 p. m. observations of barometer missed.

† Twenty-five 7 a. m., 3 p. m., and 11 p. m. observations of barometer missed.

‡ June.

§ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*																					
Jan	8	12	11	13	3	8	13	21	4	1.21	0.98	3	3.1	3.7	3.0	3.3	23.1	27.3	24.5	25.0	71.5	46.7	53.4	57.2	17	9	5	8	0	18	0	
Feb	5	10	23	6	7	4	10	14	5	1.40	0.59	20, 21	5.4	6.8	4.8	5.7	23.2	31.3	29.0	27.8	61.9	50.9	56.9	56.6	5	13	10	11	0	10	0	
Mar	14	14	9	8	14	4	9	15	6	1.27	0.66	8	4.6	6.6	5.2	5.5	29.8	37.1	35.5	34.1	60.0	43.9	55.5	53.1	7	14	10	9	0	0	0	
Apr	7	4	13	3	5	7	26	24	1	0.03	0.03	6	1.2	2.7	1.0	1.6	23.2	23.8	21.6	22.9	43.1	21.6	29.6	31.4	21	9	0	1	0	0	0	
May	14	5	10	10	8	13	9	20	4	1.16	1.07	16, 17	1.3	3.0	1.4	1.9	28.4	30.5	28.2	29.0	38.9	22.3	27.7	29.6	24	4	3	4	0	0	0	
June	18	2	10	7	7	11	8	25	2	1.26	1.26	29	0.7	2.4	2.1	1.7	38.8	42.5	41.8	41.0	38.3	21.8	28.7	29.6	22	8	0	1	0	0	18	
July	21	7	20	12	4	5	2	16	6	2.90	0.62	25, 26, 31	3.7	5.3	5.0	4.7	53.4	54.9	55.3	54.5	63.2	39.9	51.7	51.6	10	16	5	14	0	0	10	
Aug	15	20	12	9	6	6	8	16	1	3.07	0.95	5, 6	3.9	3.5	4.4	3.9	57.5	55.6	55.9	56.3	74.8	42.6	56.0	57.8	13	15	3	16	0	0	2	
Sept	11	10	12	26	6	5	10	10	0	0.42	0.26	9	1.4	2.3	2.2	2.0	41.5	41.8	42.6	42.0	47.2	28.4	36.4	37.3	21	8	1	5	0	0	2	
Oct	15	15	7	14	6	7	14	15	0	1.21	0.64	2, 3	2.1	2.9	2.3	2.4	33.5	33.0	31.1	32.5	54.0	31.1	40.1	41.7	21	5	5	5	0	0	0	
Nov	12	19	3	25	7	4	12	6	2	0.11	0.11	1	1.2	2.5	0.6	1.4	28.0	29.2	26.7	28.0	56.6	35.6	42.1	44.8	24	6	0	1	0	1	0	
Dec	12	11	9	17	13	7	8	16	0	1.44	0.53	4, 5	3.4	4.2	2.8	3.5	28.4	29.8	29.3	29.2	67.5	44.4	55.8	55.9	14	11	6	8	0	7	0	
Sums	152	129	139	150	86	81	129	198	31	15.48	....	....	32.0	45.9	34.8	37.6	408.8	436.8	421.5	422.3	677.0	429.2	533.9	546.6	199	118	48	83	0	36	32	
	Percentages.																								Percentages.							
Means	13.9	11.8	12.7	13.7	7.9	7.4	11.8	18.0	2.8	.....	....	....	2.7	3.8	2.9	3.1	34.1	36.4	35.1	35.2	56.4	35.8	44.5	45.6	54.5	32.3	13.2	22.7	0	9.9	8.8	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.48 a. m., 12.48 p. m., and 8.48 p. m., local time.

Corrections for instrumental errors of barometer used: From 4.48 a. m., January 1, to 4.48 a. m., June 19, inclusive, —.001 inch. From 4.48 a. m., August 26, to 8.48 p. m., December 31, inclusive, +.010 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 4.900; February, 4.860; March, 4.830; April, 4.730; May, 4.610; June, 4.540; July, 4.570; August, 4.570; September, 4.600; October, 4.700; November, 4.840; December, 4.880.

CHAS. A. READ,
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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

HATTERAS, N. C.

[Latitude, 35° 15′ N.; longitude, 75° 40′ W. Magnetic variation, 2° 30′ W. Elevation of barometer above sea-level, 12 feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.189	30.142	30.183	30.171	30.611	23	29.294	9	1.317	41.8	44.4	42.3	42.8	59.0	19	25.0	10, 12	34.0	48.2	37.6	3,530	3,497	3,949	10,976	42	NE.	9
Feb	30.293	30.265	30.290	30.283	30.658	2	29.956	25	.702	46.5	50.8	47.2	48.2	67.0	16	36.0	27	31.0	54.8	42.6	3,904	4,322	3,933	12,159	44	NE., SW.	12 28
Mar	30.035	29.971	30.001	30.002	30.459	5	29.468	26	.991	44.5	50.5	46.3	47.1	67.0	19	32.0	24	35.0	54.2	40.1	4,595	4,964	5,149	14,708	60	NE.	26
Apr	30.022	29.984	30.040	30.015	30.434	4	29.523	23	.911	54.6	59.9	54.3	56.3	74.0	12	38.0	3	36.0	61.8	49.4	4,298	4,662	4,591	13,551	58	SW.	28
May	30.003	29.962	29.996	29.987	30.265	18	29.434	21	.831	63.1	68.5	62.9	64.8	79.0	30	51.0	1, 4	28.0	69.8	58.8	4,206	4,910	4,862	13,978	56	NE.	2
June	30.027	30.002	30.022	30.017	30.297	3	29.729	27	.568	74.4	79.2	73.2	75.6	90.0	25	63.0	2	27.0	80.5	70.5	3,399	3,888	4,036	11,323	40	SW.	11
July	30.053	30.028	30.048	30.043	30.304	21	29.747	24	.557	78.6	83.5	76.7	79.6	90.0	14 20 23	67.5	25	22.5	85.1	73.5	3,391	3,697	3,967	11,055	40	N.	10
Aug	30.014	29.994	30.016	30.008	30.180	5, 18	29.781	29	.399	75.9	80.3	74.9	77.0	92.0	1	67.0	13, 31	25.0	82.8	71.9	3,381	4,011	3,909	11,301	34	NE.	4
Sept.. ..	30.037	30.009	30.023	30.023	30.248	27	29.718	24	.530	72.1	75.8	71.6	73.2	85.0	4, 17	63.0	8, 10 26	22.0	78.0	68.9	3,924	4,180	4,125	12,229	48	NE.	10
Oct	30.114	30.078	30.098	30.097	30.465	17	29.713	29	.752	64.2	67.4	63.2	64.9	82.0	2	52.0	25, 27	30.0	70.3	60.1	3,100	3,447	3,208	9,755	82	NE.	2, 15
Nov	30.214	30.163	30.185	30.187	30.587	16	29.896	14	.691	54.0	59.5	54.9	56.1	77.0	11	33.0	16	44.0	63.1	49.7	2,781	2,950	2,655	8,386	46	N.	27
Dec	30.162	30.116	30.145	30.141	30.473	7	29.673	14	.800	46.9	52.2	48.8	49.3	68.0	8	30.5	18	37.5	56.4	42.8	2,301	2,257	2,075	6,633	40	NW.	28
Sums..	361.163	360.714	361.047	360.974	......	......	......	...	......	716.6	772.0	716.3	734.9	....	....	....	......	....	804.5	665.9	42,810	46,785	46,459	136,054	...	....	....
																					Averages.						
Means.	30.097	30.060	30.087	30.081	30.658	*2	29.294	†9	......	59.7	64.3	59.7	61.2	92.0	‡1	25.0	†10, 12	....	67.0	55.5	3,567.5	3,898.8	3,871.6	....	...	....	....

* February. † January. ‡ August.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.*				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	17	29	5	4	3	15	6	13	1	13.90	4.41	18, 19	6.3	6.1	5.0	5.8	39.9	40.6	39.5	40.0	92.8	87.0	90.5	90.1	5	16	10	18	1	5	0	
Feb	5	30	7	7	3	19	5	8	0	3.08	.98	24, 25	6.1	5.9	4.8	5.6	42.2	43.7	42.7	42.9	86.0	78.0	85.1	83.0	7	11	10	11	0	0	0	
Mar	7	33	2	5	3	21	11	11	0	7.60	3.55	26	5.0	5.4	5.3	5.2	38.0	40.4	39.6	39.3	78.5	70.2	78.3	75.7	9	11	11	13	0	0	0	
Apr	4	35	4	6	10	18	7	5	1	6.74	3.21	23	5.6	5.6	5.6	5.6	49.9	51.8	50.5	50.7	85.2	75.5	87.8	82.8	7	15	8	11	0	0	0	
May	10	26	4	8	10	24	5	6	0	7.81	3.56	1, 2	5.1	3.7	4.3	4.4	57.6	59.3	57.7	58.2	83.5	73.9	84.5	80.6	11	12	8	8	0	0	0	
June......	2	16	5	19	9	33	5	1	0	6.76	2.61	26, 27	5.4	4.7	3.7	4.6	70.2	71.0	70.2	70.5	87.1	76.4	90.7	84.7	6	22	2	13	0	0	0	
July	1	17	12	11	12	31	7	2	0	6.20	2.61	9, 10	4.5	3.6	3.9	4.0	71.3	72.1	70.5	71.3	79.2	69.7	81.8	76.9	9	18	4	8	0	0	0	
Aug	7	39	14	7	7	14	1	4	0	3.13	.82	16, 17	5.8	5.4	4.3	5.2	70.6	70.6	69.2	70.1	83.8	73.1	83.3	80.1	9	11	11	14	0	0	1	
Sept	8	30	11	7	5	21	4	3	1	9.89	4.00	10, 11	5.9	6.5	4.5	5.6	67.2	68.3	67.4	67.6	84.7	78.6	87.1	83.5	8	11	11	11	0	0	0	
Oct	14	47	8	6	4	5	2	7	0	3.89	.95	14, 15	7.0	6.2	4.6	5.9	61.5	62.2	60.6	61.4	91.2	84.6	91.5	89.1	4	17	10	11	0	0	0	
Nov	32	9	1	5	2	22	4	12	3	4.50	3.88	25, 26	5.3	4.5	3.6	4.5	48.0	50.2	49.4	49.2	81.1	72.5	82.7	78.8	9	16	5	5	0	0	0	
Dec	18	19	5	2	6	16	5	15	7	3.46	.88	25	6.0	5.4	3.0	4.8	42.0	45.3	43.9	43.7	82.5	78.8	83.6	81.6	8	18	5	10	0	2	0	
Sums ..	125	330	78	87	74	239	62	87	13	76.96	...	......	68.0	63.0	52.6	61.2	658.4	675.5	661.2	664.9	1,015.6	918.3	1,026.9	986.9	92	178	95	133	1	7	1	
	Percentages.																								Percentages.							
Means.	11.4	30.1	7.1	7.9	6.8	21.8	5.7	7.9	1.2	.....	.....	......	5.7	5.2	4.4	5.1	54.9	56.3	55.1	55.4	84.6	76.5	85.6	82.2	25.2	48.8	26.0	36.4	0.3	1.9	0.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.06 a. m., 3.06 p. m., and 11.06 p. m., local time.

Correction for instrumental error of barometer used: From 7.06 a. m., January 1, to 11.06 p. m., December 31, inclusive, +.009 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.010; February, 0.010; March, 0.010; April, 0.010; May, 0.010; June, 0.010; July, 0.010; August, 0.010; September, 0.010; October, 0.010; November, 0.010; December, 0.010.

R. M. CRAWFORD,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

HELENA, MONT.

[Latitude, 46° 34′ N.; longitude, 112° 4′ W. Magnetic variation, 20° 30′ E. Elevation of barometer above sea-level, 4,100 feet. Elevation of exposed thermometer above ground, 5.6 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	2 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	25.776	25.764	25.749	25.760	26.151	7	25.372	11	.779	15.2	21.6	18.7	18.5	50.0	10	−34.0	19	84.0	26.1	10.2	1,371	1,378	1,520	4,269	30	SW.	9
Feb	25.889	25.882	25.877	25.883	26.255	26	25.244	13	1.011	9.1	18.0	15.1	14.1	50.0	22	−32.0	8	82.0	23.4	5.7	541	671	805	2,017	22	SW.	22
Mar	25.831	25.799	25.818	25.816	26.229	2	25.413	17	.816	28.3	40.3	33.9	34.2	64.0	22	4.0	26	60.0	44.0	25.7	1,336	1,240	1,884	4,460	36	SW.	8, 19
Apr	25.696	25.658	25.669	25.673	26.081	24	25.154	20	.927	33.9	47.0	40.3	40.4	64.0	28	11.0	1	53.0	50.0	31.9	1,357	1,688	1,938	4,983	30	SW.	15
May ...	25.767	25.728	25.742	25.746	26.116	20	25.373	17	.743	42.5	57.2	49.8	49.8	72.0	20	25.0	4	47.0	59.5	40.5	1,664	1,592	2,002	5,258	21	N.	1
June	25.781	25.751	25.750	25.761	26.042	8	25.499	10	.543	54.1	69.4	61.8	61.8	94.0	29	37.0	1	57.0	71.9	51.0	1,337	1,387	1,663	4,387	48	SW.	5
July	25.871	25.837	25.848	25.852	26.020	6	25.641	14	.379	64.5	73.7	67.9	68.7	90.0	18	46.0	6	44.0	77.5	55.5	1,199	1,157	2,117	4,473	24	SW.	{ 13 { 19
Aug.....	25.876	25.846	25.846	25.856	26.012	27	25.588	20	.424	63.9	72.5	67.2	67.9	87.0	15	38.0	22	49.0	77.5	56.3	983	884	1,342	3,209	28	{ NW., { SW.	16 18
Sept.....	25.907	25.879	25.868	25.885	26.368	20	25.591	30	.777	52.8	64.5	59.2	58.8	81.0	4, 5	39.0	30	42.0	69.3	48.2	855	682	1,035	2,572	22	SW.	16
Oct......	25.751	25.759	25.748	25.758	26.126	10	25.213	27	.913	34.8	41.2	38.9	38.3	68.0	4	23.0	{ 16 23 24 31 }	45.0	45.8	33.7	1,043	1,074	1,231	3,348	23	SW.	28
Nov.....	25.730	25.711	25.732	25.724	26.215	13	25.290	22	.925	28.1	36.0	33.0	32.4	60.0	30	−14.0	25	74.0	41.7	24.2	1,041	1,026	1,244	3,311	21	NW.	20
Dec.*....	25.803	25.805	25.802	25.803	26.336	31	25.169	25	1.167	26.0	29.9	27.4	27.8	52.0	16	−5.5	30	57.5	35.0	21.9	1,192	976	1,101	3,269	25	SW.	1
Sums..	309.678	309.414	309.449	309.512	......	....	......	....	......	453.2	571.3	513.2	512.7	....	....	......	.....	....	621.7	404.8	13,919	13,755	17,882	45,556	....	....	....
																					Averages.						
Means.	25.806	25.784	25.787	25.792	26.368	†20	25.154	‡20	......	37.8	47.6	42.8	42.7	94.0	§29	−34.0	‖19	....	51.8	33.7	1,160.0	1,146.2	1,490.2	......	....	....	....

* One 7 a. m. observation missed. † September. ‡ April. § June. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	0	0	1	0	0	60	1	5	26	0.57	0.12	6, 7	6.5	7.8	6.6	7.0	12.5	17.5	14.9	15.0	89.6	84.9	85.4	86.6	2	15	14	12	13	28	0	
Feb	0	0	0	0	0	35	2	6	41	0.73	0.30	14	4.3	5.6	4.1	4.7	6.7	14.5	12.4	11.2	90.5	87.4	89.7	89.2	9	13	6	9	14	25	0	
Mar	0	0	2	0	0	68	1	2	20	0.73	0.41	26, 27	3.8	5.6	4.3	4.6	24.3	34.1	28.9	29.1	85.5	78.9	82.5	82.3	12	12	7	11	7	22	0	
Apr	3	4	0	3	3	54	5	4	14	0.53	0.20	23	5.9	5.7	4.2	5.3	27.0	38.1	33.0	32.7	76.0	72.5	74.1	74.2	4	21	5	9	1	12	0	
May	1	0	4	1	1	61	14	5	6	1.54	0.48	1	4.7	5.9	5.5	5.4	32.7	44.2	39.2	38.7	68.6	63.2	68.2	66.7	9	13	9	9	0	5	0	
June	1	7	1	0	2	64	6	1	8	1.74	0.50	7	3.3	4.4	3.5	3.7	42.9	55.8	50.5	49.7	67.0	63.6	66.6	65.7	11	15	4	9	0	0	4	
July	1	1	2	0	9	68	6	6	0	0.32	0.27	29	0.9	4.3	2.6	2.6	52.3	58.8	55.0	55.4	65.0	60.6	64.8	63.5	20	10	1	2	0	0	0	
Aug	10	17	11	0	0	42	4	9	0	(1)	(1)	(1)	2.2	4.0	2.4	2.9	47.6	47.6	47.3	47.5	56.1	42.9	50.6	49.9	17	11	3	....	0	0	0	
Sept	23	32	0	0	0	24	4	7	0	(1)	(1)	(1)	2.0	3.0	1.8	2.3	37.5	42.1	41.9	40.5	57.3	45.5	53.9	52.2	18	10	2	....	0	0	0	
Oct	24	18	2	6	3	29	2	14	0	(1)	(1)	(1)	5.9	6.9	5.8	6.2	29.4	34.0	32.6	32.0	80.1	76.3	78.5	78.3	3	17	11	....	0	11	0	
Nov	28	10	2	2	1	44	1	2	0	0.66	0.27	24	4.0	5.0	2.9	4.0	20.1	23.8	22.6	22.2	72.3	62.5	66.0	66.9	14	11	5	6	3	20	0	
Dec.[2]	34	9	0	0	0	15	16	10	8	1.02	0.48	25, 26	3.4	5.7	4.5	4.5	18.2	19.3	17.9	18.5	71.2	64.5	67.0	67.6	11	12	7	7	9	27	0	
Sums ..	125	98	25	12	19	564	62	71	123	.....	....	......	46.9	63.9	48.2	53.2	351.2	429.8	396.2	392.5	879.2	802.8	847.3	843.1	130	160	74	....	47	151	4	
	Percentages.																								Percentages.							
Means .	11.4	8.5	2.3	1.1	1.7	51.6	5.7	6.5	11.2	.....	....	......	3.9	5.3	4.0	4.4	29.3	35.8	33.0	32.7	73.3	66.9	70.6	70.3	35.7	43.8	20.3	....	12.9	41.4	1.1	

[1] Gauge unserviceable.

[2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.40 a. m., 12.40 p. m., and 8.40 p. m., local time.

Correction for instrumental error of barometer used: From 4.40 a. m., January 1, to 8.40 p. m., December 31, inclusive, +.007 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 4.430; February, 4.400; March, 4.370; April, 4.260; May, 4.170; June, 4.120; July, 4.060; August, 4.090; September, 4.170; October, 4.300; November, 4.380; December, 4.380.

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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

HURON, DAK.

[Latitude, 44° 21′ N.; longitude, 98° 9′ W. Magnetic variation, 14° E. Elevation of barometer above sea-level, 1,306 feet. Elevation of exposed thermometer above ground, 18 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only). Washington time. 7 a. m.	Barometer. Washington time. 3 p. m.	Barometer. Washington time. 11 p. m.	Barometer. Monthly mean.	Barometer. Highest.	Barometer. Date.	Barometer. Lowest.	Barometer. Date.	Barometer. Range.	Temperature. Washington time. 7 a. m.	Temperature. Washington time. 3 p. m.	Temperature. Washington time. 11 p. m.	Temperature. Monthly mean.	Self-registering thermometer. Maximum.	Self-registering thermometer. Date.	Self-registering thermometer. Minimum.	Self-registering thermometer. Date.	Self-registering thermometer. Absolute range.	Temperature. Mean maximum.	Temperature. Mean minimum.	Wind. Washington time. 11 p. m. to 7 a. m.	Wind. Washington time. 7 a. m. to 3 p. m.	Wind. Washington time. 3 p. m. to 11 p. m.	Wind. Total.	Maximum hourly velocity during month. Miles.	Maximum hourly velocity during month. Direction from—	Maximum hourly velocity during month. Date.
1882.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28. 714	28. 688	28. 725	28. 709	29. 164	3	27. 939	12	1. 225	— 0. 9	8. 3	1. 4	2. 9	45. 0	9	—30. 3	20	75. 3	12. 8	—10. 5	2, 578	2, 664	2, 775	8, 017	40	NW.	29 30
Feb	28. 824	28. 794	26. 823	28. 814	29. 297	17	28. 108	15	1. 189	6. 6	20. 5	11. 8	13. 0	48. 0	28	—31. 8	4	79. 8	24. 2	zero.	2, 033	2, 413	2, 097	6, 543	28	NW.	16
Mar	28. 709	28. 691	28. 701	28. 700	29. 319	2	27. 984	17	1. 335	22. 0	33. 0	27. 5	27. 5	70. 5	17	— 7. 8	18	78. 3	38. 2	18. 5	2, 188	2, 771	2, 434	7, 393	44	NW.	9
Apr	28. 506	28. 480	28. 499	28. 495	29. 122	24	27. 891	21	1. 231	36. 5	53. 4	44. 3	44. 7	79. 3	20	23. 5	5	55. 8	57. 1	34. 4	2, 499	2, 961	2, 883	8, 343	48	E.	21
May	28. 550	28. 522	28. 538	28. 537	28. 897	10	27. 708	18	1. 189	44. 2	57. 5	49. 6	50. 4	78. 8	31	32. 0	10	46. 8	61. 3	41. 6	2, 565	3, 273	3, 106	8, 944	41	E.	9, 13
June	28. 550	28. 538	28. 545	28. 544	28. 773	24	28. 187	11	0. 586	57. 5	73. 4	63. 2	64. 7	94. 1	30	34. 0	3	60. 1	77. 4	52. 8	1, 936	2, 523	2, 280	6, 739	36	NE. NW.	17 22 23
July	28. 595	28. 575	28. 565	28. 578	28. 905	28	28. 165	15	0. 740	60. 9	77. 3	67. 8	68. 7	99. 2	1	46. 0	17	53. 2	81. 5	58. 2	1, 768	2, 480	2, 011	6, 259	34	NW.	16
Aug	28. 646	28. 626	28. 628	28. 633	28. 872	28	28. 092	21	0. 780	58. 6	76. 2	65. 3	66. 7	90. 6	16	42. 7	23	47. 9	79. 3	56. 5	1, 881	2, 374	2, 165	6, 420	29	NW.	19
Sept	28. 699	28. 668	28. 683	28. 683	29. 023	2	28. 358	12	0. 665	47. 9	66. 2	54. 5	56. 2	88. 0	11	28. 2	30	59. 8	69. 1	45. 8	2, 381	2, 810	2, 467	7, 658	40	SE. NW.	18 21
Oct	28. 652	28. 627	28. 656	28. 645	29. 161	19	28. 005	17	1. 156	38. 1	50. 5	43. 0	43. 9	76. 8	6	21. 8	20	55. 0	53. 4	35. 4	2, 007	2, 630	2, 316	6, 953	32	W.	29
Nov	28. 612	28. 577	28. 590	28. 593	29. 210	15 28	28. 108	25	1. 102	24. 3	40. 4	29. 4	31. 4	62. 4	2	— 4. 3	15	66. 7	45. 6	18. 3	2, 149	2, 755	2, 425	7, 329	36	NW.	13
Dec	28. 673	28. 658	28. 694	28. 675	29. 257	31	27. 885	17	1. 372	13. 3	25. 8	15. 9	18. 3	57. 0	4	—20. 5	27	77. 5	31. 1	7. 0	2, 094	2, 436	2, 441	6, 971	34	NW.	17
Sums	343. 730	343. 444	343. 647	343. 606	......	....	......	....	......	409. 0	582. 5	473. 7	488. 4	......	....	......	....	....	631. 0	358. 0	26, 079	32, 090	29, 400	87, 569	....	....	....
																					Averages.						
Means	28. 644	28. 620	28. 637	28. 634	29. 319	*2	27. 708	†18	......	34. 1	48. 5	39. 5	40. 7	99. 2	‡1	—31. 8	§4	....	52. 6	29. 8	2, 173. 2	2, 674. 2	2, 450. 0	......	....	....	....

* March. † May. ‡ July. § February.

Month	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	7	1	1	26	3	1	2	52	0	0.17	0.07	18	4.2	6.2	3.5	4.6	—12.0	— 4.6	—11.0	— 9.2	57.1	56.0	56.7	56.6	7	19	5	5	28	31	0	
Feb	3	0	1	22	9	10	8	31	0	0.47	0.13	14	4.6	5.3	4.0	4.6	— 2.1	10.5	8.3	3.9	61.7	61.6	62.2	61.8	11	9	8	10	17	28	0	
Mar	15	12	7	15	5	5	2	31	1	0.42	0.17	28	5.5	6.2	5.5	5.7	12.1	19.1	18.5	16.6	64.6	57.3	67.9	63.3	6	14	11	9	6	31	0	
Apr	15	12	9	20	3	3	4	24	0	2.14	0.99	21, 22	6.1	6.3	3.9	5.4	29.4	36.0	35.8	33.7	75.2	54.7	72.2	67.4	6	16	8	10	0	12	0	
May	15	10	12	18	2	3	5	28	0	4.45	1.33	13, 14	5.9	7.4	4.8	6.0	38.2	42.9	43.8	41.6	79.6	61.1	80.8	73.8	7	12	12	13	0	0	0	
June	18	4	4	21	14	7	5	17	0	4.33	2.10	17	3.8	5.2	3.4	4.1	50.2	55.5	56.8	54.2	77.5	54.5	79.7	70.6	12	15	3	12	0	0	3	
July	8	10	15	14	18	6	7	15	0	5.20	2.21	5, 6	5.2	5.3	4.2	4.9	56.7	61.3	62.1	60.0	86.3	58.9	82.3	75.8	8	17	6	10	0	0	3	
Aug	9	1	14	34	13	6	4	12	0	1.77	0.94	6, 7	4.8	4.2	4.3	4.4	55.0	61.2	60.3	58.8	88.3	61.9	84.0	78.1	12	12	7	12	0	0	2	
Sept	19	6	7	22	10	3	2	20	1	1.68	0.84	21, 22	5.2	4.6	3.1	4.3	43.7	49.0	46.5	46.4	85.5	56.3	74.4	72.1	11	15	4	8	0	2	0	1st killing frost 8th.
Oct	5	9	3	35	3	4	14	20	0	1.96	0.68	16, 17	6.6	7.1	6.1	6.6	33.3	34.5	35.2	34.3	82.5	59.4	74.8	72.2	3	14	14	15	0	9	0	
Nov	9	1	2	28	9	9	4	28	0	0.05	0.06	4, 5	4.1	3.9	2.8	3.6	16.4	23.0	20.2	19.9	71.7	51.7	68.6	64.0	16	10	4	2	5	28	0	
Dec	14	4	2	19	7	3	8	34	2	0.61	0.36	6	3.6	5.3	3.7	4.2	6.3	12.1	7.7	8.7	73.3	57.5	69.9	66.9	11	15	5	9	14	31	0	
Sums .	137	70	77	274	96	60	65	312	4	23.25	....	.....	59.6	67.0	49.3	58.4	327.2	400.5	379.2	368.9	903.3	690.9	873.5	822.6	110	168	87	115	70	172	8	
	Percentages.																								Percentages.							
Means	12.5	6.4	7.0	25.0	8.8	5.5	5.9	28.5	0.4	.....	....	......	5.0	5.6	4.1	4.9	27.3	33.4	31.6	30.8	75.3	57.6	72.8	68.6	30.0	46.0	23.8	31.5	19.2	47.1	2.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 5.35 a. m., 1.35 p. m., and 9.35 p. m., local time.

Correction for instrumental error of barometer used: From 5.35 a. m, January 1, to 9.35 p. m., December 31, inclusive, +0.010 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.540; February, 1.520; March, 1.480; April, 1.450; May, 1.350; June, 1.340; July, 1.320; August, 1.340; September, 1.380; October, 1.430; November, 1.480; December, 1.540.

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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

INDIANAPOLIS, IND.

[Latitude, 39° 46′ N.; longitude, 86° 10′ W. Magnetic variation, 4° 45′ E. Elevation of barometer above sea-level, 758 feet. Elevation of exposed thermometer above ground, 52 feet. Elevation of rain-gauge above ground, 74 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.320	29.294	29.321	29.312	29.791	22	28.664	10	1.127	21.6	28.2	23.6	24.5	45.0	17	−11.0	22	56.0	30.7	16.8	1,574	1,787	1,733	5,094	20	W.	31
Feb.[1]	29.446	29.405	29.417	29.423	29.883	18	28.887	24	.996	26.7	36.7	32.6	32.0	72.0	16	4.0	1	68.0	41.0	22.1	1,246	1,369	1,176	[2]3,791	21	NW.	26
Mar	29.222	29.189	29.209	29.207	29.693	8	28.752	10	.941	30.8	42.1	35.3	36.1	68.4	18	12.0	20	56.4	45.1	27.0	1,397	2,058	1,835	5,290	24	NW.	6
Apr	29.155	29.120	29.130	29.135	29.498	3	28.736	22	.762	47.1	60.0	52.9	53.3	85.3	14	30.4	24	54.9	63.0	43.9	1,427	1,910	1,604	4,941	26	SW.	15
May	29.158	29.120	29.143	29.140	29.517	6	28.695	14	.822	55.8	67.5	59.4	60.9	82.8	9	35.0	22	47.8	70.2	50.9	1,217	1,946	1,699	4,862	23	W.	10
June	29.161	29.123	29.140	29.141	29.513	1	28.748	10	.765	67.0	77.9	69.6	71.5	89.0	17	50.0	1	39.0	79.7	62.5	939	1,583	1,451	3,973	22	W.	10
July	29.251	29.219	29.226	29.232	29.523	18	28.907	12	.616	70.7	81.6	72.9	75.1	92.0	8	56.8	31	35.2	83.4	65.7	727	1,376	1,191	3,294	32	NW.	12
Aug	29.288	29.255	29.268	29.270	29.489	6	29.064	1	.425	64.0	78.4	68.9	70.4	91.0	19, 22	53.0	7	38.0	78.9	60.8	519	1,092	934	2,545	26	W.	22
Sept	29.280	29.231	29.249	29.253	29.595	9	28.895	24	.700	56.2	71.6	61.8	63.2	87.0	2	40.4	26	46.6	72.9	54.0	498	737	605	1,840	16	W.	30
Oct	29.285	29.270	29.285	29.280	29.694	16	28.626	29	1.068	50.7	59.5	54.2	54.8	81.0	9	35.0	16	46.0	61.0	48.2	641	1,074	729	2,444	20	NW.	31
Nov	29.330	29.298	29.306	29.311	29.864	16	28.819	21	1.045	40.7	50.2	44.2	45.0	65.0	9, 20, 22	10.0	16	55.0	52.7	37.1	1,226	1,592	1,459	4,277	28	NW.	26
Dec	29.281	29.258	29.288	29.276	29.626	22	28.725	16	.901	30.7	38.6	33.9	34.4	62.0	6	9.0	17	53.0	42.2	26.8	1,331	1,778	1,467	4,576	24	NW.	27
Sums	351.177	350.782	350.982	350.980	......	......	......	......	......	562.0	692.3	609.3	621.2	......	......	......	......	......	720.8	514.8	12,742	18,302	15,883	46,927	......	......	......
																					Averages.						
Means	29.265	29.232	29.248	29.248	29.883	[3]18	28.626	[4]29	......	46.8	57.7	50.8	51.8	92.0	[5]8	−11.0	[6]22	......	60.1	42.9	1,061.8	1,525.2	1,323.6	......	......	......	......

[1] One 4 p. m. observation missed.
[2] For 26½ days.
[3] February.
[4] October.
[5] July.
[6] January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness in tenths.				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	12	7	9	9	12	20	16	0	1.32	.30	10	8.1	6.2	6.5	6.9	15.9	19.2	17.0	17.4	78.0	68.1	75.3	73.8	5	8	18	14	16	30	0	
Feb.[1]	14	4	8	8	3	19	9	15	3	7.19	2.80	3, 4	5.7	6.3	6.0	6.0	20.6	25.2	26.0	23.9	77.3	63.4	76.4	72.4	6	10	11	14	7	22	0	
Mar ...	13	15	9	5	5	16	12	15	3	3.25	1.52	29, 30	4.4	5.9	4.5	4.9	22.7	22.8	25.0	23.5	71.4	48.8	66.7	62.3	6	18	7	11	2	21	0	
Apr	10	14	6	11	16	14	8	7	4	2.73	.88	22, 23	5.7	6.3	4.8	5.6	38.0	38.0	40.0	38.7	71.7	46.9	62.9	60.5	7	13	10	15	0	4	0	
May	10	4	4	10	14	21	8	21	1	4.02	1.18	14	6.4	6.4	4.4	5.7	45.9	46.6	47.1	46.5	70.3	49.4	65.3	61.7	8	12	11	14	0	0	0	
June	11	4	1	12	16	18	16	11	1	4.59	1.59	6	6.0	7.2	4.5	5.9	58.2	59.1	59.5	58.9	73.7	54.5	71.3	66.5	6	14	10	19	0	0	0	
July	6	7	2	2	17	29	10	11	9	6.12	1.44	12, 13	4.1	5.9	3.3	4.4	61.4	60.9	63.3	61.9	73.2	50.9	72.3	65.5	10	15	6	13	0	0	4	
Aug	14	19	11	4	4	9	7	8	17	2.48	1.46	23	4.4	5.8	3.1	4.4	55.9	55.8	58.7	56.8	75.5	46.7	70.5	64.2	11	15	5	11	0	0	2	
Sept	9	22	9	3	10	7	10	3	17	2.72	1.11	23, 24	4.6	4.2	2.3	3.7	49.0	50.8	51.7	50.5	77.6	50.4	70.2	66.1	14	12	4	10	0	0	0	
Oct	6	12	11	12	13	6	9	4	20	8.56	1.90	28, 29	6.8	7.6	4.8	6.4	44.4	44.3	44.9	44.5	79.7	60.1	71.8	70.5	6	13	12	14	0	0	0	
Nov	3	6	2	2	28	15	8	17	9	6.80	3.71	21	5.1	4.7	3.7	4.5	32.8	31.1	31.9	31.9	73.8	50.2	62.8	62.3	9	15	6	13	2	11	0	
Dec......	6	6	2	4	25	15	13	20	2	4.34	1.82	22, 23	6.1	6.1	5.5	5.9	23.8	25.4	24.4	24.5	75.8	60.4	68.2	68.1	8	12	11	16	8	18	0	
Sums ..	110	125	72	82	160	181	130	148	86	54.12	....	......	67.4	72.6	53.4	64.3	468.6	479.2	489.5	479.0	898.0	649.8	833.7	793.9	96	157	111	164	35	106	6	
	Percentages.																								Percentages.							
Means	10.1	11.4	6.6	7.5	14.6	16.5	11.9	13.5	7.9	.....	....	......	5.6	6.0	4.4	5.3	39.0	39.9	40.8	39.9	74.8	54.2	69.5	66.2	26.4	43.1	30.5	44.9	9.6	29.0	1.6	

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[1] One 4 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.24 a. m., 2.24 p. m., and 10.24 p. m., local time.
Correction for instrumental error of barometer used: From 6.24 a. m., January 1, to 10.24 p. m., December 31, inclusive, +0.018 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.840; February, 0.850; March, 0.840; April, 0.820; May, 0.790; June, 0.780; July, 0.770; August, 0.770; September, 0.780; October, 0.800; November, 0.840; December, 0.850.

C. F. R. WAPPENHANS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

INDIANOLA, TEX.

[Latitude, 28° 32′ N.; longitude, 96° 31′ W. Magnetic variation, 8° 30′ E. Elevation of barometer above sea-level, 26 feet. Elevation of exposed thermometer above ground, 29 feet. Elevation of rain-gauge above ground, 40 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan.*	30.123	30.114	30.153	30.130	30.643	22	29.872	18	.771	46.7	52.5	48.3	49.2	74.5	26	18.0	21	56.5	57.2	40.5	3,453	3,704	3,872	11,029	59	N.	8
Feb	30.164	30.164	30.188	30.172	30.662	27	29.671	23	.991	50.6	58.1	53.4	54.0	77.1	12	21.5	5	55.6	60.8	45.4	3,426	3,576	3,540	10,542	60	N.	17
Mar	30.012	30.010	30.026	30.016	30.451	1	29.581	24	.870	61.1	67.4	63.4	64.0	77.8	25	41.3	8	36.5	70.3	57.3	2,916	3,575	3,310	9,801	54	NE.	7
Apr	29.894	29.889	29.898	29.894	30.449	16	29.416	21	1.033	67.7	75.6	70.5	71.3	85.7	21	57.1	2	28.6	77.5	65.2	3,886	3,937	3,899	11,722	56	NW.	28
May	29.936	29.951	29.956	29.948	30.195	6	29.737	29	.458	72.9	80.4	75.3	76.2	91.0	30	62.3	21	28.7	82.5	70.3	3,105	3,844	3,889	10.838	49	NW.	20
June	29.942	29.948	29.942	29.944	30.065	30	29.671	9	.394	78.9	87.0	80.3	82.1	94.9	21	69.1	6, 28	25.8	89.5	76.5	2,154	2,751	2,948	7,853	31	SW.	28
July	30.043	30.045	30.046	30.045	30.237	18	29.869	13	.368	79.3	87.6	80.6	82.5	95.1	31	73.7	4	21.4	90.4	77.3	2,087	2,805	3,016	7,908	27	S.	14
Aug	30.010	29.996	30.008	30.005	30.154	15	29.847	11	.307	79.2	90.2	81.4	83.6	96.0	16	72.4	30	23.6	92.4	77.9	1,766	2,195	2,749	6,710	43	NE.	17
Sept	30.012	30.002	30.017	30.010	30.195	26	29.850	13	.345	75.0	81.8	77.3	78.2	90.0	1	61.2	23	28.8	83.8	72.4	2,376	2,626	2,705	7,707	45	E.	5
Oct	29.988	29.970	29.996	29.985	30.272	31	29.725	28	.547	74.0	80.7	75.8	76.8	89.8	7	51.8	26	38.0	83.1	71.4	3,162	3,538	3,556	10,256	38	N.	13 25
Nov	30.097	30.069	30.112	30.093	30.561	16	29.716	10	.845	63.1	70.1	65.7	66.3	82.2	5, 9, 10	42.2	15	40.0	72.3	59.9	3,395	3,534	3,430	10,359	46	N.	26
Dec	30.116	30.093	30.136	30.115	30.686	15	29.818	18	.868	56.2	63.9	58.5	59.5	78.1	6	35.7	16	42.4	65.9	52.9	3,158	3,632	3,536	10,326	36	N.	8, 31
Sums	360.337	360.251	360.478	360.357	......	...	......	...	......	804.7	895.3	831.0	843.7	...	......	......	......	....	925.7	767.0	34,884	39,717	40,450	115,051	....	....	....
																					Averages.						
Means	30.028	30.021	30.040	30.030	30.686	†15	29.416	‡21	......	67.1	74.6	69.2	70.3	96.0	§16	18.0	‖21	....	77.1	68.9	2,907	3,310	3,371	....	....	....	....

* One 7 a. m. observation missed. † December. ‡ April. § August. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan.[1]	36	7	16	6	15	3	2	5	2	0.97	0.32	12	5.7	5.4	3.3	4.8	43.1	44.5	44.8	44.0	87.6	76.4	86.5	83.5	8	16	7	11	2	6	0	
Feb	26	9	10	17	14	2	0	4	2	0.81	0.30	17, 18	6.8	7.1	6.0	6.6	47.0	51.5	49.0	49.2	88.2	79.8	86.4	84.8	3	14	11	13	2	6	0	
Mar	9	9	19	13	24	2	3	2	12	5.38	2.24	13	5.8	6.0	3.6	5.1	57.9	59.0	58.5	58.5	89.5	74.9	84.5	83.0	5	20	6	7	0	0	0	
Apr	17	10	11	17	32	1	0	2	0	1.99	1.09	8	5.8	5.7	4.6	5.4	62.7	63.6	63.9	63.4	84.7	68.8	81.3	78.3	4	19	7	7	0	0	0	
May	7	7	11	31	33	0	2	1	1	3.59	2.02	20	4.7	5.2	3.6	4.5	67.7	67.8	68.2	67.9	84.4	66.9	79.5	76.9	8	22	1	3	0	0	1	
June	0	1	10	26	48	1	0	1	3	1.72	0.51	6	3.5	5.1	2.4	3.7	75.4	74.6	74.8	74.9	89.6	66.8	83.5	80.0	10	19	1	6	0	0	16	
July	0	2	7	25	50	4	0	1	4	0.61	0.37	4, 5	3.3	4.0	1.3	2.9	75.2	73.5	75.1	74.6	88.2	64.0	83.9	78.7	19	11	1	5	0	0	22	
Aug	6	3	13	18	40	7	1	1	4	0.32	0.20	24	3.0	3.4	0.8	2.4	74.8	72.1	74.5	73.8	86.8	56.5	79.8	74.4	21	10	0	4	0	0	25	
Sept	12	9	24	15	17	3	3	3	4	9.86	4.30	4, 5	4.6	4.0	3.1	3.9	70.5	70.2	71.6	70.8	86.6	69.3	82.2	79.4	12	12	6	11	0	0	0	
Oct	11	9	16	22	28	3	0	1	3	2.46	0.76	22, 23	4.8	5.0	2.6	4.1	70.5	70.2	70.6	70.4	89.5	71.8	84.8	82.0	9	20	2	13	0	0	0	
Nov	17	21	12	15	20	1	0	3	1	1.21	0.53	14, 15	5.1	5.3	3.9	4.8	58.4	60.3	59.0	59.2	85.4	72.6	80.8	79.6	10	12	8	10	0	0	0	
Dec	27	8	12	8	21	6	4	5	2	1.77	0.86	11, 12	4.2	6.4	4.2	4.9	52.0	54.5	53.2	53.2	86.4	73.8	83.8	81.3	12	10	9	9	0	0	0	
Sums	168	95	161	213	342	33	15	20	38	30.69	...	......	57.3	62.2	39.4	53.1	755.2	761.8	762.7	759.9	1,046.9	841.6	997.0	961.9	121	185	59	99	4	12	64	
	Percentages.																								Percentages.							
Means	15.4	8.7	14.7	19.5	31.3	3.0	1.4	2.6	3.5	.....	.....	......	4.8	5.2	3.3	4.4	62.9	63.5	63.6	63.3	87.2	70.1	83.1	80.1	33.2	50.8	16.2	27.1	1.1	3.3	17.5	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 5.42 a. m., 1.42 p. m., and 9.42 p. m., local time.

Correction for instrumental error of barometer used: From 5.42 a. m., January 1, to 9.42 p. m., December 31, inclusive, —.024 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.030; February, 0.030; March, 0.030; April, 0.030; May, 0.030; June, 0.030; July, 0.030; August, 0.030; September, 0.030; October, 0.030; November, 0.030; December, 0.030.

ISAAC A. REED,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

JACKSONVILLE, FLA.

[Latitude, 30° 20′ N.; longitude, 81° 39′ W. Magnetic variation, 3° E. Elevation of barometer above sea-level, 43 feet. Elevation of exposed thermometer above ground, 37 feet. Elevation of rain-gauge above ground, 57 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30. 162	30. 113	30. 162	30. 146	30. 647	23	29. 560	9	1. 087	53. 5	64. 2	56. 0	57. 9	76. 0	21	29. 0	12	47. 0	65. 5	51. 0	458	746	649	1, 853	28	SW.	9
Feb	30. 242	30. 189	30. 243	30. 225	30. 545	28	30. 035	15	0. 510	58. 9	71. 9	62. 1	64. 3	83. 0	18	40. 0	28	43. 0	73. 1	57. 4	368	607	518	1, 493	19	NE.	2
Mar	30. 055	29. 986	30. 027	30. 023	30. 434	1	29. 612	25	0. 822	54. 3	67. 6	59. 2	60. 4	79. 0	{30 {31	40. 0	13	39. 0	69. 1	52. 1	1, 263	1, 796	1, 718	4, 767	28	S.	19
Apr	29. 994	29. 950	29. 988	29. 977	30. 268	3	29. 667	23	0. 601	66. 8	75. 4	68. 1	70. 1	88. 0	22	52. 0	3	36. 0	78. 1	64. 0	1, 168	1, 801	1, 418	4, 387	34	W.	23
May	30. 021	29. 967	30. 005	29. 998	30. 189	25	29. 548	21	0. 641	70. 8	80. 5	70. 5	73. 9	89. 5	13	54. 0	23	35. 5	82. 1	65. 6	1, 082	1, 381	1, 481	3, 944	16	SW.	26
June	30. 025	29. 985	30. 021	30. 010	30. 177	4	29. 809	26	0. 368	79. 5	85. 7	77. 4	80. 9	95. 0	21	68. 0	3	27. 0	83. 9	74. 8	1, 478	1, 816	2, 022	5, 316	40	W.	22
July	30. 082	30. 033	30. 068	30. 061	30. 272	22	29. 884	13	0. 388	81. 6	90. 3	80. 5	84. 1	98. 0	16	69. 5	19	28. 5	92. 2	76. 7	1, 641	1, 859	2, 188	5, 688	36	SW.	28
Aug.....	30. 016	29. 975	30. 018	30. 003	30. 171	14	29. 800	29	0. 371	77. 3	87. 5	77. 5	80. 8	94. 5	{20 {21	70. 5	23	24. 0	89. 7	73. 9	1, 004	1, 358	1, 682	4, 044	32	W.	18
Sept	30. 005	29. 965	30. 000	29. 990	30. 187	28	29. 776	21	0. 411	71. 5	83. 2	74. 7	76. 5	90. 5	30	62. 5	26	28. 0	84. 6	69. 9	1, 133	1, 780	1, 683	4, 596	32	SE.	13
Oct......	30. 047	30. 007	30. 041	30. 032	30. 204	17	29. 830	12	0. 374	70. 6	79. 6	72. 4	74. 2	92. 0	4	59. 0	25	33. 0	81. 9	68. 8	1, 407	2, 083	1, 791	5, 281	20	E., SE.	{17 {18 {19
Nov.....	30. 161	30. 116	30. 150	30. 142	30. 401	17	29. 926	14	0. 475	57. 9	70. 4	61. 5	63. 3	83. 0	11	43. 0	30	40. 0	71. 8	56. 4	1, 172	1, 700	1, 322	4, 194	23	NW.	16
Dec	30. 161	30. 105	30. 144	30. 137	30. 271	22	29. 889	14	0. 882	53. 8	69. 2	58. 4	60. 5	78. 0	31	30. 5	16	47. 5	70. 2	52. 6	861	1, 387	1, 195	3, 443	24	SW.	14
Sums..	360. 971	360. 391	360. 867	360. 744	......	...	....	....	......	796. 5	925. 5	818. 3	846. 9	....	....	....	....	....	947. 2	763. 2	13, 035	18, 304	17, 667	49, 006	....	....	....
																					Averages.						
Means.	30. 081	30. 033	30. 072	30. 062	30. 647	*23	29. 548	†21	......	66. 4	77. 1	68. 2	70. 6	98. 0	‡16	29. 0	*12	....	78. 9	63. 6	1, 086. 2	1, 525. 8	1, 472. 2	....	....	....	....

* January. † May. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	3	14	0	3	13	11	7	7	35	4.77	1.35	7, 8	5.8	6.1	4.4	5.4	49.6	52.5	50.8	51.0	87.3	67.6	82.8	79.2	8	13	10	9	0	1	0	
Feb	10	13	2	6	6	5	2	3	37	0.48	0.25	12, 13	4.3	5.0	3.6	4.3	54.7	56.0	56.9	55.9	87.0	60.2	83.6	77.1	11	13	4	8	0	0	0	
Mar	4	12	4	9	6	18	17	15	8	3.84	2.34	25	4.0	5.0	2.7	3.9	47.0	45.7	48.7	47.1	77.2	49.4	69.9	65.5	13	14	4	8	0	0	0	
Apr	5	25	8	11	15	13	3	4	6	4.48	2.17	23	6.1	6.5	3.2	5.3	61.4	58.9	61.5	60.6	83.6	59.8	80.8	74.7	5	20	5	9	0	0	0	
May	3	17	11	18	8	13	10	6	7	3.16	0.92	30	3.8	4.7	3.0	3.8	61.9	59.7	62.2	61.3	74.1	50.5	75.8	66.8	12	14	5	7	0	0	0	
June	0	7	16	9	14	34	5	4	1	7.05	1.17	25, 26	4.1	7.5	5.8	5.8	72.7	71.7	72.1	72.2	79.9	63.7	84.1	75.9	5	17	8	19	0	0	10	
July	0	3	10	16	12	45	2	4	1	6.88	1.65	8	2.6	5.2	2.9	3.6	74.3	72.6	73.8	73.6	78.7	57.1	80.2	72.0	13	17	1	12	0	0	20	
Aug	3	19	7	21	4	19	12	7	1	7.63	2.59	25, 26	2.8	5.0	4.1	4.0	72.6	70.4	72.6	71.9	85.5	58.7	85.1	76.4	11	15	5	12	0	0	18	
Sept	11	25	16	19	7	4	2	5	1	7.28	2.44	17	3.9	5.6	2.6	4.0	67.6	67.4	69.6	68.2	88.3	60.0	84.6	77.6	13	12	5	8	0	0	1	
Oct	18	36	10	3	8	9	1	7	1	7.26	4.23	16, 17	4.3	5.8	3.3	4.5	66.6	66.0	67.7	66.8	88.5	64.9	85.6	79.7	12	12	7	7	0	0	3	
Nov	21	20	8	17	3	2	2	8	9	0.09	0.09	19, 20	4.1	5.4	3.0	4.2	52.6	54.8	54.7	54.0	83.5	60.7	80.7	75.0	14	10	6	2	0	0	0	
Dec	13	15	2	7	13	9	10	9	15	0.42	0.42	25	3.5	3.9	2.3	3.2	50.6	53.2	54.0	52.6	89.2	58.1	86.1	77.8	15	15	1	1	0	1	0	
Sums ..	91	206	94	139	109	182	73	79	122	53.34	....	......	49.3	65.7	40.9	52.0	731.6	728.9	744.6	735.2	1003.4	710.7	979.8	897.7	182	172	61	102	0	2	52	
	Percentages.																								Percentages.							
Means .	8.3	18.8	8.6	12.7	10.0	16.6	6.7	7.2	11.1	.....	....	......	4.1	5.5	3.4	4.3	61.0	60.7	62.0	61.2	83.0	59.2	81.6	74.8	36.2	47.1	16.7	27.9	0	0.5	14.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.42 a. m., 2.42 p. m., and 10.42 p. m., local time.

Correction for instrumental error of barometer used: From 6.42 a. m., January 1, to 10.42 p. m., December 31, 0.000 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.050; February, 0.050; March, 0.050; April, 0.040; May, 0.040; June, 0.040; July, 0.040; August, 0.040; September, 0.040; October, 0.040; November, 0.050; December, 0.050.

J. W. SMITH,
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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

KEOKUK, IOWA.

[Latitude, 40° 23′ N.; longitude, 91° 26′ W. Magnetic variation, 8° E. Elevation of barometer above sea-level, 618 feet. Elevation of exposed thermometer above ground, 47 feet. Elevation of rain-gauge above ground, 60 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°			*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan.* …	29.488	29.470	29.492	29.483	30.007	23	28.920	30	1.087	11.2	19.7	15.5	15.5	43.0	30	−13.0	22	56.0	25.5	7.2	2,092	2,597	2,323	7,012	40	NW.	10
Feb ….	29.603	29.589	29.599	29.597	30.090	17	28.898	16	1.192	20.2	29.1	25.3	24.9	62.0	16	− 7.0	5	69.0	33.6	16.2	1,771	1,964	2,026	5,761	26	SW.	27
Mar ….	29.416	29.381	29.408	29.402	29.971	3	28.852	18	1.119	30.0	41.5	34.5	35.3	68.0	14	11.0	7	57.0	44.2	27.2	2,238	2,703	2,687	7,028	30	N.	18
Apr ….	29.251	29.211	29.238	29.233	29.627	2	28.653	22	.974	47.8	61.6	52.6	54.0	85.0	13	29.0	1	56.0	64.1	43.7	2,457	2,849	3,007	8,313	38	SE.	21
May …	29.270	29.248	29.255	29.258	29.649	11	28.789	14	.860	55.5	66.0	58.0	59.8	84.0	7, 18	38.0	22	46.0	69.1	50.7	2,134	2,853	2,767	7,754	35	E.	13
June …	29.282	29.264	29.255	29.267	29.552	1	28.976	8	.576	65.7	75.2	68.2	69.7	91.0	29	52.0	1	39.0	72.0	61.5	1,658	2,215	2,006	5,879	38	S.	16
July …	29.357	29.343	29.331	29.344	29.676	18	28.934	13	.742	71.2	82.7	74.1	76.0	95.5	2	56.0	8	39.5	84.4	66.4	1,760	2,112	2,016	5,888	36	S. & E.	13, 20
Aug ….	29.427	29.406	29.404	29.412	29.644	6	29.141	21	.503	65.0	78.7	70.0	71.2	90.0	19	55.0	3, 4, 23, 24	35.0	79.8	61.8	1,265	1,802	1,520	4,587	28	S.	21
Sept …	29.423	29.380	29.394	29.399	29.759	9	29.049	24	.710	54.7	72.4	61.0	62.7	86.5	1	39.0	9	47.5	73.8	52.1	1,333	1,778	1,699	4,810	28	NW.	20
Oct ….	29.445	29.409	29.420	29.425	29.898	15	28.826	29	1.072	46.7	57.0	50.8	51.5	84.0	8	32.0	21	52.0	58.5	44.6	1,786	1,971	2,004	5,821	48	S.	17
Nov ….	29.463	29.407	29.419	29.430	29.985	12	28.845	8	1.140	37.2	49.2	42.1	42.8	68.0	8	12.0	15	56.0	52.0	34.1	1,967	2,370	2,308	6,645	28	S., NW.	5, 20, 25
Dec ….	29.426	29.408	29.447	29.427	29.806	14	28.822	26	.984	27.5	36.9	30.9	31.8	62.0	1	2.0	19	60.0	41.6	23.1	1,588	1,704	1,511	4,803	36	SE.	6
Sums.	352.851	352.516	352.662	352.677	……	…	……	…	……	532.7	670.0	583.0	595.2	….	….	……	……..	….	708.6	488.6	22,049	26,918	25,934	74,901	…	……..	……
																					Averages.						
Means	29.404	29.376	29.388	29.389	30.090	†17	28.653	‡22	……	44.4	55.8	48.6	49.6	95.5	§2	−13.0	‖22	….	58.6	40.7	1,837.4	2,243.2	2,161.2	……	…	……	……

* One 7 a. m. observation missed. † February. ‡ April. § July. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point (in tenths).				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan.[1]	8	8	11	7	5	10	21	21	1	1.24	.45	16, 17	4.5	6.3	5.3	5.4	4.8	11.4	10.7	9.0	75.3	70.0	81.2	75.5	8	13	9	11	20	31	0	
Feb	7	8	11	4	7	12	15	20	0	6.13	3.66	15, 16	4.8	5.1	5.6	5.2	13.4	18.1	18.1	16.5	74.8	64.1	74.1	71.0	12	4	12	10	10	25	0	
Mar	12	15	9	5	3	13	11	25	0	1.07	.63	24, 25	3.7	5.4	5.2	4.8	23.0	26.7	26.2	25.3	74.8	57.1	71.2	67.7	12	10	9	8	1	20	0	
Apr	7	16	9	16	14	11	12	5	0	2.97	1.35	22, 23	3.4	5.5	3.8	4.2	38.3	40.7	40.2	39.7	70.9	50.1	64.4	61.8	12	12	6	10	0	3	0	Last snow April 23.
May	17	16	5	11	16	10	13	13	2	4.87	1.19	28	5.9	6.0	3.5	5.1	47.5	47.2	48.4	47.7	75.5	53.2	71.4	66.7	7	18	6	13	0	0	0	Last frost 22d.
June	12	5	8	10	12	9	15	16	3	5.88	1.00	20, 21	5.1	6.3	3.7	5.0	59.0	59.2	61.0	59.7	79.4	59.7	78.5	72.5	8	15	7	16	0	0	1	
July	9	5	8	11	24	24	4	5	3	3.15	.95	10, 11	3.9	4.5	2.9	3.8	63.2	65.3	65.7	64.7	76.5	57.2	75.7	69.8	12	15	4	13	0	0	7	
Aug	12	11	11	8	13	12	5	14	7	1.32	.67	21	4.4	5.2	2.1	3.9	59.0	59.7	62.4	60.4	81.4	53.7	77.2	70.8	14	12	5	7	0	0	0	First frost Sept. 9.
Sept	14	10	19	5	8	9	10	11	4	1.76	1.12	7	3.2	3.5	2.3	3.0	49.0	49.6	50.4	49.7	81.6	46.4	69.4	65.8	17	9	4	8	0	0	0	1st kill'g frost Oct. 15; 1st light snow Oct. 24.
Oct	15	17	18	11	8	2	6	14	2	6.95	1.50	17, 18	6.1	5.7	6.5	6.1	42.4	42.4	42.8	42.5	85.3	61.7	75.5	74.2	5	15	11	16	0	0	0	
Nov	8	1	3	11	23	15	8	16	5	2.09	1.23	5	3.6	4.3	3.7	3.9	30.4	31.6	32.5	31.5	77.1	52.9	69.3	66.4	11	12	7	4	2	10	0	
Dec	5	5	9	9	8	13	14	17	13	1.20	.65	22	4.1	4.4	4.7	4.4	20.8	24.4	22.6	22.6	76.1	62.2	71.8	70.0	13	10	8	8	7	21	0	
Sums .	126	107	121	108	141	140	134	177	40	38.63	....	......	52.7	62.2	49.3	54.8	450.8	476.3	481.0	469.3	928.7	688.3	879.7	832.2	131	145	88	124	40	110	8	
	Percentages.																								Percentages.							
Means	11.5	9.8	11.1	9.9	12.9	12.8	12.2	16.2	3.7	.....	....	......	4.4	5.2	4.1	4.6	37.6	39.7	40.1	39.1	77.4	57.4	73.8	69.4	36.0	39.8	24.2	34.0	11.0	30.1	2.2	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.02 a. m., 2.02 p. m., and 10.2 p. m., local time.
Correction for instrumental error of barometer used: From 6.02 a. m., January 1, to 10.02 p. m., December 31, inclusive, +0.025 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.700; February, 0.700; March, 0.690; April, 0.670; May, 0.650; June, 0.640; July, 0.630; August, 0.630; September, 0.650; October, 0.670; November, 0.690; December, 0.710.

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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

KEY WEST, FLA.

[Latitude, 24° 34′ N.; longitude, 81° 49′ W. Magnetic variation, 4° E. Elevation of barometer above sea-level, 20 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 42 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.135	30.099	30.147	30.127	30.348	23	29.851	9	.497	70.0	75.9	71.0	72.8	82.0	7, 8	55.0	12	27.0	77.2	68.4	2,602	2,708	2,527	7,837	34	NW., NE.	9, 31
Feb	30.159	30.129	30.175	30.154	30.354	28	30.019	23	.335	72.8	78.5	73.8	75.0	82.4	23	65.0	27	17.4	79.4	71.6	2,689	3,136	2,938	8,763	39	NE.	27
Mar	30.052	30.025	30.059	30.045	30.329	1	29.781	25	.548	70.0	76.9	71.3	72.7	86.4	31	59.7	28	26.7	78.5	68.0	2,673	2,861	2,533	8,067	33	NW.	25
Apr	30.009	29.985	30.019	30.004	30.148	4	29.811	23	.337	76.9	84.1	76.5	79.2	90.0	30	69.0	17–24	21.0	85.6	74.1	1,978	2,533	2,229	6,740	44	N.	24
May	30.020	30.001	30.024	30.015	30.154	24	29.747	21	.407	78.7	82.8	77.0	79.5	90.8	31	70.4	20	20.4	84.6	74.5	1,858	2,284	2,103	6,245	36	SW.	1
June	30.038	30.023	30.050	30.037	30.131	22	29.931	8	.200	83.3	87.4	80.8	83.8	93.5	27	73.2	15	20.3	90.2	77.9	1,216	1,721	1,660	4,597	23	E., SE.	8, 30
July	30.092	30.081	30.106	30.093	30.191	22	30.013	20	.178	83.5	89.0	81.8	84.8	94.2	25	72.7	7	21.5	91.8	79.0	1,304	1,937	1,859	5,190	24	NE.	28
Aug	30.018	30.001	30.034	30.018	30.142	14	29.876	29	.266	82.8	88.0	82.1	84.3	94.7	2	74.0	31	20.7	91.2	78.9	1,471	1,871	1,512	4,854	37	SW.	30
Sept	29.977	29.947	29.989	29.971	30.136	28	29.802	21	.334	81.1	86.6	80.9	82.9	92.0	13	71.5	1	20.5	88.7	78.1	1,388	1,604	1,168	4,160	24	N., NE.	1, 20
Oct	29.996	29.952	29.999	29.982	30.124	3, 6	29.791	22	.333	78.4	81.9	78.3	79.5	91.0	2	71.0	21	20.0	84.4	75.9	1,703	2,072	1,809	5,584	24	NE., E.	8 9 15
Nov	30.062	30.015	30.066	30.048	30.187	4	29.901	25	.286	73.5	77.6	74.0	75.0	85.5	12	67.0	3	18.5	79.0	72.4	2,715	3,096	2,818	8,629	32	N.	2
Dec	30.133	30.092	30.140	30.122	30.226	20	29.998	26	.228	69.5	74.3	70.8	71.5	81.0	31	57.0	16	24.0	76.0	68.3	2,046	2,346	2,214	6,606	33	N.	15
Sums ..	360.691	360.350	360.808	360.616	......	....	......	...	.....	920.5	983.0	918.3	940.5	....	....	....	....	....	1,006.6	887.1	23,733	28,169	25,870	77,272	....	....	....
																					Averages.						
Means.	30.058	30.029	30.067	30.051	30.354	*28	29.747	†21	.....	76.7	81.9	76.5	78.4	94.7	‡2	55.0	§12	....	83.9	73.9	1,977.8	2,347.4	2,114.2	......	....	....	....

* February. † May. ‡ August. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).				Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
											Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.								
1883.										*In.*	*In.*						°	°	°	°												
Jan	4	25	22	25	5	1	0	7	4	2.82	1.15	25, 26	5.7	4.9	2.3	4.3	66.4	67.0	67.1	66.8	88.0	74.4	88.0	83.8	11	15	5	10	0	0	0	
Feb	3	21	50	10	0	0	0	0	0	.80	.25	10, 11	4.9	4.2	2.3	3.8	68.1	67.6	68.0	67.9	85.4	69.3	82.3	79.0	11	14	3	8	0	0	0	
Mar	15	24	14	10	11	11	1	6	1	.87	.61	9, 10	5.3	4.3	4.0	4.5	63.1	62.5	63.4	63.0	79.0	61.9	76.5	72.5	10	13	8	8	0	0	0	
Apr	6	7	18	34	10	4	3	4	4	.54	.53	24	3.8	3.0	2.2	3.0	68.8	67.6	68.0	68.1	77.1	58.6	76.1	70.6	15	15	0	2	0	0	0	
May	10	23	23	15	2	5	4	7	4	5.58	4.85	11	4.6	3.6	2.6	3.6	68.9	68.0	68.6	68.5	72.3	61.6	75.7	69.9	10	20	1	6	0	0	2	
June....	0	6	33	29	3	8	1	1	9	3.29	.78	5, 15	5.2	4.9	4.5	4.9	74.2	73.8	73.7	73.9	74.5	64.4	79.0	72.6	4	23	3	10	0	0	16	
July	3	3	45	21	2	6	1	1	11	1.51	.56	7	5.1	4.3	2.6	4.0	73.8	72.8	73.6	73.4	72.9	59.2	76.0	69.4	10	17	4	15	0	0	26	
Aug	1	7	34	13	6	15	3	1	13	6.08	1.10	31	4.4	5.2	2.8	4.1	74.3	73.7	73.6	73.9	75.7	63.0	75.2	71.3	14	14	3	16	0	0	27	
Sept	4	25	17	3	7	5	1	7	21	5.17	1.24	1	5.0	5.1	2.6	4.2	74.0	73.6	74.3	74.0	79.1	65.0	80.4	75.0	9	17	4	15	0	0	8	
Oct	1	33	34	9	4	2	1	2	7	19.77	9.24	20, 21	4.7	5.0	4.0	4.6	73.5	72.2	72.5	72.7	85.3	73.6	83.1	80.7	13	12	6	16	0	0	1	
Nov	14	51	22	3	0	0	0	0	0	.84	.40	22	2.5	3.8	1.9	2.7	68.5	67.9	67.9	68.1	84.6	72.5	81.7	79.6	20	9	1	5	0	0	0	
Dec......	8	49	20	4	0	2	1	4	5	.97	.59	27	2.9	3.2	1.8	2.6	61.1	64.6	64.9	64.5	83.4	72.2	82.0	79.2	21	9	1	8	0	0	0	
Sums ..	69	274	332	176	50	59	16	40	79	48.24	.....	.....	54.1	51.5	33.6	46.3	837.7	831.3	835.6	834.8	958.2	796.3	956.0	903.6	148	178	39	119	0	0	8	
	Percentages.																								Percentages.							
Means .	6.3	25.0	30.3	16.1	4.6	5.4	1.5	3.6	7.2	.....	.....	.....	4.5	4.3	2.8	3.9	69.8	69.3	69.6	69.6	79.8	66.4	79.7	75.3	40.5	48.7	10.8	32.6	....	...	21.9	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.41 a. m., 2.41 p. m., and 10.41 p. m., local time.

Correction for instrumental error of barometer used: From 6.41 a. m., January 1, to 10.41 p. m., December 31, inclusive, .000 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; February, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

A. W. BROWNE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

KITTY HAWK, N. C.

[Latitude, 36° N.; longitude, 75° 42′ W. Magnetic variation, 2° 45′ W. Elevation of barometer above sea-level, 22 feet. Elevation of exposed thermometer above ground, 4 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.							7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.193	30.158	30.186	30.179	30.615	24	29.333	9	1.282	38.4	42.5	40.2	40.4	65.0	28	19.8	12	45.2	47.2	34.0	3,645	3,725	3,693	11,063	44	NE.	9
Feb	30.297	30.276	30.293	30.289	30.708	2	29 916	7	.792	44.8	50.1	46.1	47.0	76.0	17	32.0	10, 27	44.0	54.8	39.7	3,721	4,261	3,370	11,352	45	NE.	18
Mar	30.031	29.972	30.013	30.005	30.502	5	29.427	10	1.095	41.5	48.8	42.5	44.3	73.0	30	27.0	23	46.0	53.1	36.3	4,503	5,194	4,565	14,262	60	N.	15, 16
Apr	30.032	29.990	30.030	30.017	30.409	4	29.515	23	.894	51.2	57.0	51.8	53.3	81.0	6	36.0	3	45.0	61.6	47.0	4,056	4,218	4,393	12,667	48	NE.	1
May	30.014	29.970	29.990	29.991	30.279	18	29.424	21	.855	60.9	67.3	60.9	63.0	86.5	29	47.0	1	39.5	70.4	55.9	4,020	4,626	4,280	12,926	43	NE.	2
June	30.035	30.006	30.025	30.022	30.333	1	29.748	27	.585	72.9	79.9	72.3	75.0	94.0	19	59.0	1	35.0	82.1	68.8	2,871	3,415	3,462	9,748	85	SW.	19
July	30.062	30.033	30.046	30.047	30.301	21	29.739	24	.562	76.8	85.5	75.8	79.4	99.5	23	64.0	20	35.5	86.6	72.1	2,499	3,245	3,494	9,238	44	N.	24
Aug	30.039	30.017	30.036	30.031	30.190	5	29.795	29	.395	74.2	78.8	73.8	75.6	90.5	20	63.9	26	26.6	80.4	70.5	3,352	3,962	3,823	11,137	35	NE.	4
Sept.....	30.061	30.029	30.044	30.045	30.254	27	29.724	24	.530	69.8	74.9	70.1	71.6	87.5	14	59.0	8, 26	28.5	76.8	67.0	3,977	4,234	4,227	12,438	52	NE.	10
Oct......	30.126	30.098	30.120	30.115	30.514	17	29.633	29	.881	62.5	66.2	62.7	63.8	88.0	2	49.9	25	38.1	68.5	59.3	4,421	4,753	4,456	13,630	46	NE.	15
Nov	30.222	30.172	30.199	30.198	30.597	16, 17	29.883	12	.714	50.8	59.0	52.3	54.0	78.2	11	29.0	16	49.2	61.7	46.9	1,407	1.500	1,231	*4,138	63	NE.	27
Dec	30.174	30.129	30.161	30.155	30.511	23	29.652	27	.859	44.4	50.7	46.0	47.0	67.5	8	23.0	16	44.5	53.5	40.7	3,431	3,370	3,233	10,034	44	NE.	2
Sums..	361.286	360.850	361.145	361.093	......	.....	......	....	.....	688.2	760.7	694.5	714.4	....	...	...	.....	....	796.7	638.2	†40,496	†45,003	†42,996	†128,495	....	....	.....
																					Averages.						
Means.	30.107	30.071	30.095	30.091	30.708	‡2	29.333	§9	.....	57.4	63.4	57.9	59.5	99.5	§23	19.8	‖12	....	66.4	53.2	3,681.5	4,091.2	3,908.7	....	....	....	.....

* For 10½ days. † Sum for 11 months. ‡ February. § July. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	19	31	4	4	1	14	8	12	0	8.16	2.25	9, 10	6.2	5.8	6.5	6.2	34.6	36.3	36.0	35.6	86.6	80.8	85.9	84.4	6	14	11	16	1	9	0	
Feb	5	31	8	2	5	20	5	8	0	2.87	.94	24, 25	5.5	6.1	4.9	5.5	37.8	39.3	40.3	39.1	77.6	68.8	80.9	75.8	9	7	12	10	0	0	0	
Mar	11	34	5	2	2	22	8	9	0	6.28	2.32	19, 20	4.5	4.8	4.4	4.6	33.5	33.7	34.2	33.8	74.0	59.0	73.3	68.8	11	14	6	13	0	6	0	
Apr	10	35	3	8	8	19	4	3	0	8.78	3.04	23	5.3	5.3	5.0	5.2	47.6	48.0	47.7	47.8	88.1	73.5	86.4	82.7	9	11	10	14	0	0	0	
May	4	34	3	6	2	33	6	4	1	7.76	1.46	15, 16	4.7	4.6	4.3	4.5	55.5	57.4	56.9	56.6	83.4	73.9	87.3	81.5	10	15	6	14	0	0	0	
June	2	16	7	18	3	35	6	3	0	6.57	1.48	8	5.2	4.3	2.9	4.1	68.0	68.8	68.5	68.4	85.3	69.8	88.3	81.1	9	18	3	13	0	0	4	
July	4	21	9	9	7	27	12	4	0	3.98	1.50	9, 10	3.8	2.8	3.3	3.3	69.1	69.0	68.6	68.9	78.0	59.4	79.0	72.1	13	16	2	8	0	0	11	
Aug	5	41	13	10	4	17	3	0	0	12.39	8.58	15, 16	5.1	4.8	4.4	4.8	67.6	67.7	67.8	67.7	80.7	70.3	82.0	77.7	9	15	7	12	0	0	1	
Sept	1	38	8	8	3	17	11	3	1	7.73	2.71	10, 11	6.5	6.3	5.1	6.0	64.3	65.2	65.4	65.0	83.2	72.7	85.6	80.5	7	12	11	9	0	0	0	
Oct	6	45	12	9	4	9	3	4	1	3.80	.75	5, 6	6.0	6.5	5.8	6.1	57.7	57.6	57.9	57.7	84.8	75.7	85.1	81.9	8	10	13	15	0	0	0	
Nov	10	30	0	2	5	24	6	11	2	1.65	1.45	25, 26	4.5	3.7	3.1	3.8	42.7	44.4	44.8	44.0	75.0	62.1	77.1	71.4	11	17	2	6	0	2	0	
Dec	10	30	3	6	1	21	7	15	0	2.89	.59	23, 24	4.2	4.9	4.0	4.4	37.6	40.4	38.6	38.9	77.8	69.5	76.4	74.6	12	13	6	11	0	3	0	
Sums	87	386	75	84	45	258	79	76	5	72.86	...	......	61.5	59.9	53.7	58.5	616.0	627.6	626.7	623.5	974.5	835.5	987.8	932.5	114	162	89	141	1	20	16	
	Percentages.																								Percentages.							
Means	7.9	35.3	6.8	7.7	4.1	23.6	7.2	6.9	0.5	......	......	......	5.1	5.0	4.5	4.9	51.3	52.8	52.2	52.0	81.2	69.6	82.3	77.7	31.2	44.4	24.4	38.6	0.3	5.5	4.4	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.05 a. m., 3.05 p. m., and 11.05 p. m., local time.
Correction for instrumental error of barometer used: From 7.05 a. m., January 1, to 11.05 p. m., December 31, inclusive, +.009 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; February, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

WESLEY BLAKE,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

KNOXVILLE, TENN.

[Latitude, 35° 56′ N.; longitude, 83° 58′ W. Magnetic variation, 2° 30′ E. Elevation of barometer above sea-level, 980 feet. Elevation of exposed thermometer above ground, 72 feet. Elevation of rain-gauge above ground, 77 feet.]

Month.	Barometer (corrected for temperature and instrumental error only). Washington time. 7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Temperature. Washington time. 7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Self-registering thermometers. Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	Wind. Washington time. 11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Maximum hourly velocity during month. Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.143	29.095	29.121	29.120	29.590	22	28.659	10	.931	32.6	43.5	38.1	38.1	70.0	27	1.5	12	68.5	47.6	30.1	1,276	1,606	1,485	4,367	24	W.	21, 31
Feb	29.241	29.215	29.240	29.232	29.623	27	28.865	7	.758	40.9	50.9	44.5	45.4	78.0	16	24.2	27	53.8	54.8	36.6	1,314	1,827	1,508	4,649	34	SW.	11
Mar	29.037	28.982	29.018	29.012	29.433	1	28.624	31	.809	38.4	52.3	43.7	44.8	70.0	30	24.0	16	46.0	55.1	35.6	1,549	2,840	2,053	5,942	30	W.	10
Apr	28.990	28.944	28.978	28.971	29.309	8	28.527	23	.782	52.3	67.2	56.0	58.5	85.7	13	33.3	3	52.4	69.7	48.4	1,096	1,856	1,770	4,722	35	SW.	22
May	29.036	28.983	29.000	29.006	29.235	6	28.505	20	.730	57.1	73.2	62.2	64.2	86.1	9	37.3	24	48.8	75.7	53.3	1,009	1,877	1,797	4,683	26	NW.	14
June	29.039	28.990	29.009	29.013	29.236	2	28.802	10	.434	67.9	81.0	71.9	73.6	90.0	17	54.0	1	36.0	84.3	65.2	812	1,672	1,443	3,927	20	SW.	10
July	29.105	29.062	29.077	29.081	29.339	22	28.822	12	.517	70.7	83.5	73.5	75.9	96.0	22	58.2	11	37.8	87.0	66.9	781	1,732	1,290	3,803	24	SW.	8
Aug	29.082	29.029	29.058	29.056	29.214	31	28.899	28	.315	66.5	82.4	70.5	73.1	94.0	21	53.2	30	40.8	84.9	64.8	709	1,417	1,246	3,372	20	W.	13
Sept	29.084	29.012	29.048	29.048	29.256	27	28.803	24	.453	61.2	79.7	67.4	69.4	92.0	4	47.0	27	45.0	81.9	50.6	837	1,386	1,356	3,579	22	SE.	18
Oct	29.102	29.059	29.094	29.085	29.356	17	28.655	29	.701	57.1	70.5	60.1	62.6	83.9	13	40.3	31	43.6	72.5	55.2	1,046	1,440	1,230	3,716	32	SW.	29
Nov	29.220	29.148	29.191	29.186	29.636	16	28.915	9	.721	41.4	56.7	46.6	48.2	76.2	21	14.1	16	62.1	59.6	38.7	932	1,453	1,228	3,643	22	N. SW. NW.	12 22 26
Dec	29.139	29.128	29.142	29.136	29.363	10	28.701	27	.662	36.0	47.4	39.8	41.1	63.0	6	19.0	16	44.0	49.9	32.2	882	1,354	1,203	3,439	32	W.	27
Sums	349.219	348.647	348.976	348.946	......	....	......	....	......	622.1	788.3	674.3	694.9	....	....	.....	....	....	823.0	586.6	12,273	19,960	17,609	49,842	...	....	.....
																					Averages.						
Means.	29.102	29.054	29.081	29.079	29.636	*16	28.505	†20	......	51.8	65.7	56.2	57.9	96.0	‡22	1.5	§12	....	68.6	48.9	1,022.8	1,663.3	1,467.4	......	...	....	.....

*November. †May. ‡July. §January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	11	21	7	2	2	30	12	6	2	7.94	2.54	20	6.9	6.6	5.8	6.4	30.1	32.6	33.1	31.9	90.6	69.8	83.8	81.4	4	14	13	16	4	16	0	
Feb	16	21	2	1	3	18	8	9	6	3.46	1.04	4, 5	6.8	6.7	4.8	6.1	36.7	37.1	37.6	37.1	85.4	64.6	78.6	76.2	9	5	14	15	0	8	0	
Mar	12	16	7	1	2	30	14	8	3	4.01	2.08	30, 31	6.0	5.8	4.3	5.4	31.4	29.3	32.3	31.0	76.4	45.4	66.4	62.7	7	14	10	10	0	12	0	
Apr	11	13	10	4	2	25	11	8	6	8.17	3.75	22, 23	4.9	5.9	4.1	5.0	47.0	43.3	46.6	45.6	82.9	46.1	73.1	67.4	10	12	8	16	0	0	0	
May	10	19	4	2	1	32	8	6	11	3.31	0.78	15, 29	4.7	4.8	3.9	4.5	51.4	48.8	51.6	50.6	81.5	44.9	70.0	65.5	11	15	5	10	0	0	0	
June	10	9	5	1	3	37	7	10	8	2.99	1.16	6, 7	5.2	5.9	3.8	5.0	63.6	62.3	65.1	63.7	86.6	54.2	79.5	73.4	6	22	2	11	0	0	0	
July	10	17	4	2	3	21	18	9	9	3.59	0.87	17	2.8	5.6	3.2	3.9	64.4	61.7	63.4	63.8	81.0	50.0	75.5	68.8	10	19	2	13	0	0	11	
Aug	12	31	7	0	4	18	8	3	10	2.48	1.08	2	3.8	5.5	2.9	3.9	62.8	60.1	63.3	62.1	88.3	48.9	79.0	72.1	11	17	3	8	0	0	5	
Sept	7	22	1	3	2	26	7	7	15	2.53	0.90	23, 24	4.8	5.1	3.4	4.4	56.7	55.7	58.1	56.8	86.1	45.6	73.9	68.5	10	16	4	7	0	0	1	
Oct	17	21	4	0	6	23	6	4	12	4.66	1.43	6	6.3	6.0	4.5	5.6	55.0	57.4	56.4	56.3	92.9	65.3	88.6	82.3	9	10	12	14	0	0	0	
Nov	7	35	4	3	2	18	5	6	10	4.18	2.62	22	4.8	4.7	3.0	4.2	37.0	36.4	37.8	37.1	85.8	51.1	72.6	69.8	15	8	7	7	1	9	0	
Dec	6	24	13	4	2	8	15	10	11	3.35	0.89	24	4.9	5.6	3.9	4.8	32.7	33.5	34.2	33.5	88.5	61.9	80.9	77.1	10	12	9	12	1	15	0	
Sums ..	129	249	68	23	32	286	119	86	103	50.67	....	......	61.4	68.2	47.6	59.2	568.8	558.2	581.5	569.5	1,026.0	647.8	921.9	865.2	112	164	89	139	6	60	17	
	Percentages.																								Percentages.							
Means .	11.8	22.7	6.2	2.1	2.9	26.1	10.9	7.9	9.4	.....	...	......	5.1	5.7	4.0	4.9	47.4	46.5	48.5	47.5	85.5	54.0	76.8	72.1	30.7	44.9	24.4	38.1	1.6	16.4	4.7	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.32 a. m., 2.32 p. m., and 10.32 local time.

Corrections for instrumental errors of barometer used: From 6.32 a. m., January 1, to 10.32 p. m., June 30, inclusive, —.010 inch; from 6.32 a. m., July 1, to 10.32 p. m., December 31, inclusive, +.023 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.080; February, 1.080; March, 1.060; April, 1.040; May, 1.020; June, 1.010; July, 1.000; August, 1.010; September, 1.020; October, 1.040; November, 1.070; December, 1.060.

JOHN A. CODY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

LA CROSSE, WIS.

[Latitude, 43° 49′ N.; longitude, 91° 15′ W. Magnetic variation, 9° E. Elevation of barometer above sea-level, 725 feet. Elevation of exposed thermometer above ground, 40 feet. Elevation of rain-gauge above ground, 67 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.304	29.290	29.316	29.303	29.769	23	28.540	30	1.229	1.2	8.3	5.3	4.9	34.0	30	—30.0	21	64.0	14.0	—4.5	1,679	2,112	1,821	5,612	32	NW.	30
Feb	29.443	29.413	29.421	29.426	29.897	1	28.767	16	1.130	10.7	21.6	18.8	17.0	45.0	28	—21.0	1	66.0	24.0	6.6	1,549	1,904	1,776	5,229	22	NW.	16
Mar	29.259	29.240	29.254	29.251	29.797	7	28.563	17	1.234	22.2	32.0	27.5	27.2	50.0	17	— 3.0	7	55.0	34.5	18.3	1,705	2,431	2,114	6,250	36	NW.	15
Apr	29.139	29.100	29.110	29.116	29.472	2	28.405	10	1.067	42.4	54.4	48.6	48.5	73.0	13	21.0	1	52.0	56.7	39.3	1,923	2,352	2,576	6,851	33	SW., NE.	15, 22
May	29.140	29.116	29.114	29.123	29.460	11	28.577	18	.883	49.5	57.8	54.7	54.0	78.0	18	31.0	21	47.0	60.7	46.2	1,981	2,603	2,227	6,811	36	SW.	18
June	29.124	29.102	29.099	29.108	29.342	30	28.685	11	.657	63.5	73.3	68.2	68.3	*87.0	28	50.0	3	37.0	74.6	59.4	1,475	2,335	1,917	5,727	36	W.	11
July	29.195	29.168	29.159	29.174	29.533	18	28.820	12	.713	67.1	78.2	71.8	72.4	95.0	1	52.0	8	43.0	79.0	64.2	1,583	1,936	1,936	5,455	28	W., NW.	3, 12, 20, 26
Aug	29.292	29.265	29.258	29.272	29.543	6	28.762	21	.781	61.8	74.7	67.9	68.1	89.0	17	52.0	23	37.0	75.7	59.6	1,337	2,110	1,556	5,003	25	W., S.	20, 21, 22
Sept	29.307	29.282	29.291	29.293	29.678	9	28.834	24	.844	52.0	63.4	57.7	57.7	79.0	1	35.0	8	44.0	64.9	50.1	1,292	1,931	1,502	4,725	25	N.	16
Oct	29.326	29.297	29.310	29.311	29.821	15	28.705	29	1.116	41.9	51.3	47.4	46.9	80.0	8	27.0	20	53.0	53.1	40.7	1,575	1,943	1,924	5,442	28	W.	31
Nov	29.245	29.210	29.215	29.223	29.870	28	28.705	25	1.165	32.3	41.3	37.8	37.1	59.2	19, 20	3.0	15	56.2	45.4	27.8	2,258	2,641	2,287	7,186	36	S.	27
Dec	29.261	29.257	29.274	29.264	29.669	22	28.590	17	1.079	20.2	28.1	24.5	24.3	53.0	12	—10.0	19	63.0	31.6	16.7	2,130	2,211	1,967	6,308	38	NW.	14
Sums	351.035	350.740	350.821	350.864	......	...	......	....	......	464.8	584.4	530.2	526.4	......	......	......	...	....	614.2	424.4	20,487	26,509	23,603	70,599	...	....	......
																					Averages.						
Means.	29.253	29.228	29.235	29.239	29.897	†1	28.405	‡10	......	38.7	48.7	44.2	43.9	95.0	§1	—30.0	‖21	....	51.2	35.4	1,707.2	2,209.0	1,966.9	......	...	....	......

* Nine 11 p. m. observations missed. † February. ‡ April. § July. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1863.										*In.*	*In.*						°	°	°	°												
Jan	21	1	0	6	16	12	19	16	2	1.54	.28	30	4.0	4.5	3.9	4.1	—4.4	1.0	—1.8	—1.7	78.2	72.3	72.9	74.5	8	20	3	15	30	31	0	
Feb	9	1	0	9	21	10	18	16	0	1.25	.55	15, 16	3.8	3.6	4.7	4.0	3.4	10.9	10.3	8.2	72.8	62.7	68.8	68.1	10	12	6	9	21	27	0	
Mar	18	4	1	4	16	10	13	27	0	.13	.08	25, 26	6.1	5.1	4.1	5.1	13.8	20.1	17.4	17.1	69.4	61.2	64.9	65.2	7	15	9	5	11	30	0	
Apr	12	13	8	8	15	11	7	15	1	1.49	.53	20	5.8	5.0	4.6	5.1	30.3	32.2	34.1	32.2	63.7	45.7	58.8	56.1	8	13	9	12	0	4	0	
May	18	11	4	5	20	8	13	14	0	3.87	1.00	13, 14	6.2	6.5	4.0	5.6	38.9	37.4	41.4	39.2	67.8	50.8	62.5	60.4	8	12	11	16	0	1	0	
June	13	1	3	7	28	12	11	15	0	3.92	1.41	11	5.1	5.7	3.9	4.9	5..8	53.9	55.6	53.8	68.2	53.1	64.8	62.0	10	13	7	10	0	0	0	
July	14	0	3	5	32	15	12	11	1	11.03	2.60	20	6.1	5.4	4.5	5.3	58.8	60.3	61.4	60.2	75.5	55.7	70.5	67.2	8	13	10	11	0	0	3	
Aug	10	3	2	7	32	16	9	10	4	1.71	.85	11, 12	3.5	6.0	2.8	4.1	53.8	55.2	57.8	55.6	75.2	52.4	70.5	66.0	11	15	5	7	0	0	0	
Sept	22	3	0	7	28	10	3	14	3	4.92	2.00	23, 24	4.1	5.0	3.8	4.3	46.0	46.0	49.4	47.1	80.2	55.2	74.7	70.0	12	10	8	11	0	0	0	
Oct	13	5	2	18	18	6	15	14	2	1.68	.58	8, 9	5.6	7.1	5.8	6.2	34.9	35.0	37.3	35.7	76.5	57.2	68.7	67.5	7	10	14	10	0	2	0	
Nov	8	0	0	2	41	7	14	18	0	1.09	.61	25	4.7	5.7	3.2	4.5	25.0	30.2	29.5	28.2	74.5	64.9	72.3	70.6	11	14	5	3	2	16	0	
Dec	17	4	0	6	33	5	14	14	0	1.06	.57	6, 7	5.2	4.4	4.7	4.8	13.5	19.5	17.6	16.9	75.1	71.1	74.7	73.6	12	10	9	9	15	24	0	
Sums	175	46	23	84	300	122	148	184	13	33.69	....	......	60.2	64.0	50.0	58.0	365.8	401.7	410.0	392.5	877.1	702.3	824.1	801.2	112	157	96	118	79	135	3	
	Percentages.																								Percentages.							
Means	16.0	4.2	2.1	7.7	27.4	11.1	13.5	16.8	1.2	....	...	......	5.0	5.3	4.2	4.8	30.5	33.5	34.2	32.7	78.1	58.5	68.7	66.8	30.7	48.0	26.3	32.8	21.6	37.0	0.1	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.03 a. m., 2.03 p. m., and 10.03 p. m., local time.

Correction for instrumental error of barometer used: From 6.03 a. m., January 1, to 10.03 p. m., December 31, inclusive, —0.007 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.840; February, 0.840; March, 0820; April, 0.800; May, 0.760; June, 0.760; July, 0.750; August, 0.750; September, 0.770; October, 0.790; November, 0.820; December, 0.850.

S. C. EMERY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

LEAVENWORTH, KANS.

[Latitude, 39° 19′ N.; longitude, 94° 57′ W. Magnetic variation, 10° E. Elevation of barometer above sea-level, 842 feet. Elevation of exposed thermometer above ground, 35 feet. Elevation of rain-gauge above ground, 48 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.306	29.247	29.287	29.280	29.751	22	28.565	12	1.186	13.6	24.6	19.9	19.4	50.0	12	−10.0	19, 20	60.0	29.4	10.5	1,612	1,844	1,726	5,182	36	NW.	10
Feb	29.403	29.370	29.385	29.386	29.911	17	28.533	15	1.378	22.0	33.1	28.5	27.9	66.0	15, 28	−12.0	4	78.0	39.1	19.6	1,042	1,525	1,396	3,963	30	NW.	24
Mar	29.211	29.179	29.200	29.197	29.800	3	28.623	18	1[illegible]77	33.3	45.6	39.4	39.4	71.0	17	14.5	19	56.5	49.8	30.9	1,890	2,305	2,185	6,440	34	N.	18
Apr	29.003	28.964	28.990	28.986	29.491	24	28.329	22	1.162	48.0	64.7	56.1	56.3	86.5	13	33.0	7	53.5	68.6	45.0	1,694	2,782	2,670	7,146	36	SW.	14
May	29.056	29.025	29.031	29.037	29.459	11	28.533	13	.926	54.0	67.7	60.8	60.8	89.0	2	39.0	5	50.0	71.9	50.8	1,710	2,822	2,534	7,066	30	S.	9
June	29.083	29.041	29.052	29.059	29.260	3	28.703	11	.557	65.4	77.5	70.3	71.1	92.0	29, 30	47.0	3	45.0	81.0	61.2	1,226	2,019	1,756	5,001	38	NW.	11
July	29.142	29.113	29.118	29.124	29.445	18	28.835	12	.610	71.1	83.8	75.4	76.8	96.5	1	59.0	9, 17, 30	37.5	86.5	67.5	1,297	2,204	1,966	5,467	34	N.	13
Aug	29.209	29.184	29.186	29.193	29.410	5	28.875	21	.535	65.8	80.6	71.8	72.7	93.0	21	53.0	24	40.0	82.9	63.0	635	1,497	1,311	3,443	20	S.	21, 31
Sept	29.199	29.158	29.179	29.179	29.508	5	28.895	21	.613	55.9	72.7	61.7	63.4	92.0	1	42.0	22	50.0	74.9	53.0	693	1,450	1,212	3,355	24	NW.	20
Oct	29.188	29.141	29.183	29.171	29.608	20	28.459	1	1.149	47.2	59.3	52.3	53.0	85.0	7, 8	34.0	20, 26	51.0	62.3	45.2	1,243	1,772	1,630	4,645	40	NW.	1
Nov	29.228	29.172	29.211	29.204	29.813	12	28.546	25	1.267	38.1	51.2	42.7	44.0	73.0	25	16.0	14, 15	57.0	54.8	33.9	1,287	1,913	1,774	4,974	32	NW.	5, 25
Dec.*	29.222	29.192	29.236	29.217	29.685	14	28.535	26	1.150	30.5	40.8	34.1	35.1	65.0	1	4.0	27	61.0	45.7	26.7	1,465	1,891	1,951	5,310	33	NW.	26
Sums	350.250	349.786	350.058	350.033	......	...	......	...	.....	544.9	701.6	613.0	619.9	...	...	......	......	....	746.9	507.3	15,794	24,087	22,111	61,992	..	....	.....
																					Averages.						
Means	29.188	29.149	29.172	29.170	29.911	†17	28.329	‡22	.....	45.4	58.5	51.1	51.7	96.5	§1	−12.0	†4	....	62.2	42.3	1,316.2	2,007.2	1,842.6	......	....	....	.....

* One 7 a. m. observation missed. † February. ‡ April. § July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	16	7	3	9	13	0	3	28	14	.75	.38	16	4.6	6.7	4.4	5.2	7.6	14.8	12.9	11.8	76.6	65.7	74.0	72.1	8	14	9	9	17	31	0	
Feb	15	5	6	6	15	1	2	19	15	2.92	1.23	23, 24	5.0	5.7	4.4	5.0	16.3	22.0	20.7	19.7	78.4	64.4	72.4	71.7	12	6	10	13	8	21	0	
Mar	25	10	6	12	13	6	1	18	2	1.05	.35	24, 25	4.5	5.1	4.9	4.8	25.5	26.6	28.5	26.9	73.1	49.3	65.7	62.7	10	12	9	6	0	17	0	
Apr	12	6	4	14	30	2	4	12	6	.97	.33	14	5.2	4.7	3.4	4.4	38.1	35.1	39.2	37.5	69.4	37.2	55.6	54.1	9	14	7	9	0	0	0	
May	16	2	6	13	28	2	3	17	6	7.33	2.44	13	5.3	5.0	3.9	4.7	45.6	45.1	48.3	46.3	73.7	47.4	64.8	62.0	9	15	7	12	0	0	0	
June	29	1	2	13	17	4	0	17	7	10.84	2.41	16, 17	4.5	4.9	3.7	4.4	59.3	61.0	62.5	60.9	81.1	58.2	76.8	72.0	10	17	3	14	0	0	3	
July	14	4	3	13	44	4	1	5	5	8.58	2.15	29, 30	3.1	4.3	4.0	3.8	63.3	65.1	65.4	64.6	76.7	54.9	72.0	67.9	15	11	5	13	0	0	13	
Aug	21	1	4	15	24	4	2	5	17	1.95	.72	12, 13	4.3	4.4	2.7	3.8	61.2	61.7	63.7	62.2	85.4	53.6	76.2	71.7	16	8	7	9	0	0	1	
Sept ...	12	7	4	12	12	1	1	12	29	1.57	.41	21, 22	4.3	4.2	2.3	3.6	50.3	51.3	51.4	51.0	82.0	49.3	70.3	67.2	13	13	4	7	0	0	1	
Oct	19	8	18	12	15	0	4	9	8	3.31	1.80	12, 13	6.2	6.6	5.6	6.1	42.4	43.9	44.8	43.7	83.8	59.4	76.7	73.3	7	9	15	16	0	0	0	
Nov	11	2	1	4	41	5	2	11	13	2.02	1.66	5	2.6	3.6	2.9	3.0	30.4	31.6	30.2	30.7	74.5	50.2	62.5	62.4	14	14	2	3	1	12	0	
Dec.[1] ...	10	2	6	5	21	9	4	24	12	.65	.25	6	3.5	5.5	4.2	4.4	23.3	24.6	24.6	24.2	74.2	54.2	69.0	65.8	13	12	6	7	5	21	0	
Sums..	200	55	63	128	273	38	27	177	134	41.94	......	.....	53.1	60.7	46.4	53.2	463.3	482.8	492.2	479.5	928.9	643.8	836.0	802.9	136	145	84	118	31	102	18	
	Percentages.																								Percentages.							
Means.	18.3	5.0	5.8	11.7	24.9	3.5	2.5	16.2	12.2	.....	......	.....	4.4	5.1	3.9	4.5	38.6	40.2	41.0	39.9	77.4	53.6	69.7	66.9	37.3	39.7	23.0	32.3	8.5	27.9	4.9	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.48 a. m., 1.48 p. m., and 9.48 p. m., local time.

Correction for instrumental error of barometer used: From 5.48 a. m., January 1, to 9.48 p. m., December 31, inclusive, +.017 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, .960; February, .950; March, .940; April, .910; May, .880; June, .870; July, .860; August, .860; September, .880; October, .900; November, .940; December, .900.

T. S. OUTRAM,
Corporal, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

LEWISTON, IDAHO.

[Latitude, 46° 8′ N.; longitude, 117° 5′ W. Magnetic variation, 21° 15′ E. Elevation of barometer above sea-level, 780 (B) feet. Elevation of exposed thermometer above ground, 22 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°			°	°	*Miles.*	*Miles*	*Miles.*	*Miles.*			
Jan	29.393	29.376	29.345	29.371	30.016	19	28.804	25	1.122	24.4	28.6	27.8	26.9	51.1	6	—14.2	19	65.3	33.2	20.4	995	766	865	2,626	22	SW.	6
Feb	29.507	29.574	29.501	29.527	30.114	4	28.596	13	1.518	17.6	25.4	21.8	21.6	54.0	22, 28	—13.5	4	67.5	30.2	14.9	672	837	816	2,325	23	NE.	1
Mar	29.248	29.238	29.193	29.226	29.631	2	28.655	28	.976	39.1	51.6	48.6	46.4	71.7	20	31.5	3	40.2	59.5	36.6	491	484	757	1,732	25	W.	17
Apr	29.128	29.114	29.097	29.113	29.444	14	28.660	19	.784	42.5	55.8	50.8	49.7	74.3	29	33.2	13	41.1	60.7	40.5	522	800	1,118	2,440	28	NW.	15
May	29.159	29.141	29.101	29.134	29.626	19	28.681	12	.945	49.5	65.7	60.9	58.7	82.8	30	36.8	3	46.0	71.7	48.7	616	735	1,130	2,481	24	E.	7
June	29.167	29.132	29.095	29.131	29.535	5	28.801	10	.734	56.3	78.2	72.4	69.0	98.0	29	43.6	5	54.4	83.1	54.6	511	477	964	1,952	25	W.	4
July	29.192	29.150	29.092	29.145	29.367	24	28.940	12	.427	62.5	82.7	80.6	75.3	98.1	8	50.5	16	47.6	90.0	59.1	585	475	1,007	2,067	25	W.	14
Aug.[1]	29.182	29.155	29.103	29.147	29.443	19	28.934	3	.509	62.1	78.3	76.3	72.2	98.0	15	45.5	19	52.5	87.1	57.6	501	355	904	1,760	24	W.	17
Sept	29.169	29.137	29.097	29.134	29.611	20	28.475	29	1.136	50.6	67.1	61.8	59.8	[2]93.5	5	34.0	26	59.5	76.0	47.7	165	171	336	672	20	NW.	18
Oct	29.199	29.190	29.169	29.186	29.562	30	28.596	27	.966	42.4	52.5	48.4	47.8	[3]65.0	12	29.3	23	35.7	57.9	39.5	522	525	690	1,737	22	SW.	29
Nov	29.242	29.233	29.238	29.238	29.684	12	28.648	24	1.036	37.6	46.9	42.6	42.4	63.2	29	25.2	4	38.0	57.6	35.5	599	699	782	2,080	28	SE.	2
Dec	29.350	29.349	29.345	29.348	30.017	31	28.462	25	1.555	31.9	37.1	34.0	34.3	54.0	27	6.0	31	48.0	41.7	29.3	515	457	571	1,543	25	SW.	25
Sums	350.936	350.789	350.376	350.700	......	...	......	...	......	516.5	669.9	626.0	604.1	......	.....	......	...	....	748.7	484.4	6,694	6,781	9,940	23,415	....	....	....
																					Averages.						
Means	29.245	29.232	29.198	29.225	30.114	[4]4	28.462	[5]25	......	43.0	55.8	52.2	50.3	98.1	[6]8	—14.2	[7]19	....	62.4	40.4	557.8	565.1	828.3	......	....	....	....

[1] One 7 a. m. observation missed. [2] Four 11 p. m. observations missed. [3] One 11 p. m. observation missed. [4] February. [5] December. [6] July. [7] January.

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	0	15	28	17	5	7	16	1	4	3.56	0.74	6	6.1	7.8	6.3	6.7	19.1	20.9	21.4	20.5	80.3	73.4	77.2	77.0	5	10	16	17	11	23	0	
Feb	0	15	23	9	8	12	6	1	15	0.82	0.36	18, 19	2.9	4.3	3.2	3.5	10.7	15.6	14.4	13.6	74.1	67.5	78.2	71.6	13	12	8	8	12	22	0	Four solar halos 28th.
Mar	1	7	27	6	5	2	19	12	14	3.21	1.51	28, 29	4.0	4.2	3.0	3.7	33.6	35.4	39.0	36.0	79.9	56.3	70.8	69.0	14	13	4	7	0	1	0	
Apr	2	6	22	17	4	8	18	6	12	1.12	0.40	30	5.9	6.6	3.5	5.3	35.1	31.2	35.8	34.0	75.5	41.5	58.0	58.3	7	16	7	11	0	0	0	Last frost 14th.
May	2	11	25	6	2	8	18	11	10	2.01	0.48	7, 8	5.5	4.8	4.0	4.8	42.6	41.2	44.5	42.8	79.2	43.0	57.4	59.9	8	17	6	12	0	0	0	
June	6	11	12	4	6	4	18	7	28	0.01	0.01	4	2.7	3.3	3.1	3.0	44.0	42.2	45.2	43.8	64.7	29.0	40.6	44.8	16	12	2	1	0	0	5	
July	8	6	13	8	0	4	21	11	31	0.00	0.00	....	2.0	1.1	3.1	2.1	41.8	41.9	42.8	42.2	48.4	24.6	27.2	33.4	19	12	0	0	0	0	15	
Aug[1]	1	11	9	22	0	14	5	14	16	(2)	(2)	4, 25	2.5	0.9	1.4	1.6	46.4	50.9	50.2	49.2	58.1	42.3	43.5	48.0	21	9	0	0	0	0	10	
Sept	0	20	2	15	0	1	2	7	43	0.04	0.03	18	1.8	1.7	1.7	1.7	39.6	42.2	42.4	41.4	67.2	42.6	51.8	53.7	19	11	0	2	0	0	2	First frost 20th.
Oct	0	28	3	14	0	9	4	5	30	1.84	0.33	16, 17	4.2	5.1	5.1	4.8	34.9	35.3	37.4	35.9	75.6	54.3	67.1	65.7	8	16	7	17	0	2	0	
Nov	0	22	2	22	1	12	3	5	23	1.86	0.73	23, 24	4.7	5.5	6.1	5.4	31.1	32.8	33.1	32.3	78.1	58.7	70.5	69.1	5	18	7	12	0	4	0	First snow 20th.
Dec	0	19	1	16	0	11	1	5	40	1.36	0.75	25	5.2	6.2	4.6	5.3	25.8	26.5	26.7	26.3	77.9	66.7	75.0	73.2	10	13	8	7	3	20	0	
Sums	9	171	167	151	26	87	131	85	266	15.83	.....	.....	47.5	51.5	45.1	47.9	404.7	416.1	432.8	418.0	859.0	599.9	711.8	723.7	145	159	60	94	26	72	32	
	Percentages.																								Percentages.							
Means	.8	15.6	15.3	13.8	2.4	8.0	12.0	7.8	24.3	.....	.....	.....	4.0	4.3	3.8	4.0	33.7	34.7	36.1	34.8	71.6	50.0	59.3	60.3	39.8	43.7	16.5	25.8	7.1	19.7	8.8	

[1] One 7 a. m. observation missed.

[2] Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.20 a. m., 12.20 p. m., and 8.20 p. m., local time.

Corrections for instrumental errors of barometer used: From 4.20 a. m., January 1, to 4.20 a. m., September 30, inclusive, —0.004 inch. From 12.20 p. m., September 30, to 8.20 p. m., December 31, inclusive, +0.004 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.870; February, 0.870; March, 0.860; April, 0.850; May, 0.840; June, 0.820; July, 0.810; August, 0.810; September, 0.830; October, 0.850; November, 0.870; December, 0.880.

C. E. BUTLER,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

LITTLE ROCK, ARK.

[Latitude, 34° 45′ N.; longitude, 92° 6′ W. Magnetic variation, 8° E. Elevation of barometer above sea-level, 298 feet. Elevation of exposed thermometer above ground, 26 feet. Elevation of rain-gauge above ground, 57 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.873	29.837	29.866	29.859	30.389	22	29.463	30	.926	35.9	45.3	40.3	40.5	60.0	27	12.0	21	54.0	47.8	33.1	1,320	1,431	1,401	4,152	26	NW., N.	10, 27
Feb	29.981	29.928	29.937	29.955	30.523	27	29.389	24	1.134	41.2	48.6	45.1	45.0	74.0	15, 16	22.0	6, 18	52.0	53.4	36.9	1,254	1,460	1,268	3,982	22	N.	17
Mar	29.770	29.722	29.740	29.744	30.201	3	29.349	30	.942	46.8	58.0	52.6	52.5	76.0	18	34.0	20	42.0	61.9	44.0	1,104	1,603	1,604	4,311	23	N.	15
Apr	29.634	29.587	29.606	29.609	29.988	25	29.005	22	.983	56.6	70.4	62.6	63.2	86.0	14	46.0	3, 25	40.0	73.1	54.0	1,227	1,859	1,645	4,731	27	S.	14
May	29.685	29.653	29.656	29.665	29.962	5, 6	29.410	28	.552	61.9	75.4	67.3	68.2	87.0	18	44.0	22	43.0	79.0	59.0	928	1,831	1,566	4,325	24	S.	9
June	29.680	29.652	29.658	29.663	29.899	1	29.364	9	.535	71.9	84.7	76.4	77.7	97.0	21	57.0	1	40.0	88.6	69.2	392	1,142	943	2,477	28	N.	12
July	29.761	29.723	29.731	29.738	29.999	18	29.497	12	.502	74.2	87.3	79.1	80.2	94.0	{16, 20, 21 23, 24, 30}	64.0	10	30.0	90.8	71.2	738	1,442	1,287	3,467	22	SW.	4
Aug	29.764	20.732	29.740	29.745	29.932	5	29.573	11	.359	71.1	84.5	76.1	77.2	98.0	1	62.0	6	36.0	87.7	69.1	505	1,213	1,064	2,782	30	NW.	23
Sept	29.769	29.716	29.745	29.743	29.914	9	29.589	13	.325	62.2	79.8	69.3	70.4	95.0	2	48.0	23, 24	47.0	82.2	60.0	327	929	946	2,202	20	NW.	21
Oct.*	29.754	29.722	29.743	29.740	30.097	31	29.320	28	.777	61.7	71.9	65.8	66.5	90.0	5	45.0	26	45.0	74.7	59.9	1,234	1,519	1,381	4,134	21	SW.	6
Nov	29.884	29.838	29.857	29.860	30.397	16	29.321	21	1.076	49.6	61.6	54.9	55.4	79.0	9	26.0	16	53.0	64.9	47.6	1,000	1,513	1,166	3,679	40	SW.	21
Dec	29.860	29.816	29.854	29.843	30.311	15	29.316	26	.995	43.9	54.1	47.6	48.5	74.0	1	28.0	15	46.0	57.7	40.2	1,112	1,388	1,344	4,038	24	N.	14
Sums..	357.415	356.926	357.153	357.164	.....	....	......	....	.....	667.0	821.6	737.1	745.3	....	....	....	.....	....	861.8	644.6	11,141	17,890	15,615	44,280	..	....	.....
																					Averages.						
Means.	29.785	29.744	29.763	29.764	30.523	†27	29.005	‡22	.....	56.4	68.5	61.4	62.1	98.0	§1	12.0	‖21	....	71.8	53.7	928.4	1,444.2	1,301.2	......	..	....	.....

*One 11 p. m. observation missed. † February. ‡ April. § August. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from— North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. Total amount.	Any 3 consecutive 8 hourly measurements. Largest amount.	Date.	Washington time. Cloudiness (in tenths.) 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	Remarks.
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	8	10	8	14	6	5	28	6	5.44	1.66	3	6.2	6.3	4.5	5.7	29.7	32.4	32.0	31.4	78.4	62.9	72.8	71.4	7	12	12	13	2	14	0	
Feb	17	7	11	5	11	5	2	10	16	6.47	1.70	23, 24	7.1	6.7	7.0	6.9	35.5	37.0	36.3	36.3	80.2	67.0	73.2	73.5	8	1	19	13	1	8	0	
Mar	20	7	10	2	13	14	4	10	13	4.24	1.96	30, 31	5.1	5.3	4.3	4.9	35.5	39.1	39.1	37.9	66.1	52.4	61.6	60.0	10	11	10	8	0	0	0	
Apr	11	4	7	18	18	8	5	12	7	8.92	4.57	5, 6	5.4	4.8	3.2	4.5	49.2	51.4	51.8	50.8	77.2	53.7	69.7	66.9	11	11	8	12	0	0	0	
May	7	6	10	3	26	2	4	10	25	4.17	1.70	9, 10	4.8	4.5	1.7	3.7	55.5	57.2	59.5	57.4	80.1	54.4	76.6	70.4	14	14	3	11	0	0	0	
June	10	3	3	3	17	11	5	5	33	3.01	.88	4, 5	4.2	4.6	1.9	3.6	67.8	69.7	69.6	69.0	87.1	62.1	80.0	76.4	14	15	1	12	0	0	13	
July	2	10	11	15	15	10	4	7	19	4.83	1.77	3, 4	3.7	5.3	2.1	3.7	69.5	71.5	72.0	71.0	85.6	60.5	79.7	75.3	12	15	4	13	0	0	17	
Aug	8	18	11	7	9	5	1	11	23	2.30	.54	1, 2	3.2	4.8	1.6	3.2	67.2	66.7	69.9	67.9	87.7	57.2	82.0	75.6	19	9	3	10	0	0	10	
Sept	4	8	6	7	4	8	3	8	47	3.67	2.77	30	2.6	3.2	1.4	2.4	56.9	58.4	60.8	58.7	83.3	49.7	74.9	69.3	20	8	2	2	0	0	4	
Oct.[1]	6	18	12	16	8	11	4	7	10	5.55	2.02	19	6.6	6.1	4.1	5.6	57.9	59.0	59.5	58.8	87.5	66.5	80.5	78.2	6	16	8	11	0	0	0	
Nov	17	11	5	8	20	7	2	3	17	3.13	1.00	21	5.1	5.1	3.7	4.6	42.4	44.7	45.1	44.1	76.9	56.6	70.9	68.1	13	8	9	12	0	2	0	
Dec	12	10	1	14	14	7	4	23	8	3.89	1.38	29, 30	4.5	6.3	4.5	5.1	36.8	38.9	39.1	38.3	76.6	59.3	73.8	69.9	10	12	9	11	0	4	0	
Sums..	122	110	97	106	169	89	43	134	224	55.62	....	......	58.5	63.0	40.0	53.9	603.9	626.0	634.7	621.6	966.7	702.3	895.7	855.0	144	132	88	128	3	28	44	
	Percentages.																								Percentages.							
Means.	11.2	10.1	8.9	9.7	15.4	8.1	3.9	12.3	20.5	.....	....	......	4.9	5.2	3.3	4.5	50.3	52.2	52.9	51.8	80.6	58.5	74.6	71.2	39.8	36.0	24.2	35.1	0.8	7.8	12.1	

[1] One 11 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.59 a. m., 1.59 p. m., and 9.59 p. m., local time.
Correction for instrumental error of barometer used: From 5.59 a. m., January 1, to 9.59 p. m., December 31, inclusive, —.012 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, .330; February, .330; March, .330; April, .320; May, .310; June, .310; July, .310; August, .310; September, .310; October, .320; November, .330; December, .330.

W. U. SIMONS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

KEY WEST, FLA.

[Latitude, 24° 34′ N.; longitude, 81° 49′ W. Magnetic variation, 4° E. Elevation of barometer above sea-level, 20 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 42 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.135	30.099	30.147	30.127	30.348	23	29.851	9	.497	70.0	75.9	71.0	72.3	82.0	7, 8	55.0	12	27.0	77.2	68.4	2,602	2,708	2,527	7,837	34	NW., NE.	9, 31
Feb	30.159	30.129	30.175	30.154	30.354	28	30.019	23	.335	72.8	78.5	73.8	75.0	82.4	23	65.0	27	17.4	79.4	71.6	2,689	3,136	2,938	8,763	39	NE.	27
Mar	30.052	30.025	30.059	30.045	30.329	1	29.781	25	.548	70.0	76.9	71.3	72.7	86.4	31	59.7	28	26.7	78.5	68.0	2,673	2,861	2,533	8,067	33	NW.	25
Apr	30.009	29.985	30.019	30.004	30.148	4	29.811	23	.337	76.9	84.1	76.5	79.2	90.0	30	69.0	17–24	21.0	85.6	74.1	1,978	2,533	2,229	6,740	44	N.	24
May	30.020	30.001	30.024	30.015	30.154	24	29.747	21	.407	78.7	82.8	77.0	79.5	90.8	31	70.4	20	20.4	84.6	74.5	1,858	2,284	2,103	6,245	36	SW.	1
June	30.038	30.023	30.050	30.037	30.131	22	29.931	8	.200	83.3	87.4	80.8	83.8	93.5	27	73.2	15	20.3	90.2	77.9	1,216	1,721	1,660	4,597	23	E., SE.	8, 30
July	30.092	30.081	30.106	30.093	30.191	22	30.013	20	.178	83.5	89.0	81.8	84.8	94.2	25	72.7	7	21.5	91.8	79.0	1,394	1,937	1,859	5,190	24	NE.	28
Aug	30.018	30.001	30.034	30.018	30.142	14	29.876	29	.266	82.8	88.0	82.1	84.3	94.7	2	74.0	31	20.7	91.2	78.9	1,471	1,871	1,512	4,854	37	SW.	30
Sept	29.977	29.947	29.989	29.971	30.136	28	29.802	21	.334	81.1	86.6	80.9	82.9	92.0	13	71.5	1	20.5	88.7	78.1	1,388	1,604	1,168	4,160	24	N., NE.	1, 20
Oct	29.996	29.952	29.999	29.982	30.124	3, 6	29.791	22	.333	78.4	81.9	78.3	79.5	91.0	2	71.0	21	20.0	84.4	75.9	1,703	2,072	1,809	5,584	24	NE., E.	8 9 15
Nov	30.062	30.015	30.066	30.048	30.187	4	29.901	25	.286	73.5	77.6	74.0	75.0	85.5	12	67.0	3	18.5	79.0	72.4	2,715	3,096	2,818	8,629	32	N.	2
Dec	30.133	30.092	30.140	30.122	30.226	20	29.998	26	.228	69.5	74.3	70.8	71.5	81.0	31	57.0	16	24.0	76.0	68.3	2,046	2,346	2,214	6,606	33	N.	15
Sums	360.691	360.350	360.808	360.616	......	....	......	...	.....	920.5	983.0	918.3	940.5	....	....	....	.....	....	1,006.6	887.1	23,733	28,169	25,370	77,272	....	....	....
																					Averages.						
Means	30.058	30.029	30.067	30.051	30.354	*28	29.747	†21	.....	76.7	81.9	76.5	78.4	94.7	‡2	55.0	§12	....	83.9	73.9	1,977.8	2,347.4	2,114.2	......	....	....	....

* February. † May. ‡ August. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	4	25	22	25	5	1	0	7	4	2.82	1.15	25, 26	5.7	4.9	2.3	4.3	66.4	67.0	67.1	66.8	88.9	74.4	88.0	83.8	11	15	5	10	0	0	0	
Feb	3	21	50	10	0	0	0	0	0	.80	.25	10, 11	4.9	4.2	2.3	3.8	68.1	67.6	68.0	67.9	85.4	69.3	82.3	79.0	11	14	3	8	0	0	0	
Mar	15	24	14	10	11	11	1	6	1	.87	.61	9, 10	5.3	4.3	4.0	4.5	63.1	62.5	63.4	63.0	79.0	61.9	76.5	72.5	10	13	8	8	0	0	0	
Apr	6	7	18	34	10	4	3	4	4	.54	.53	24	3.8	3.0	2.2	3.0	68.8	67.6	68.0	68.1	77.1	58.6	76.1	70.6	15	15	0	2	0	0	0	
May	10	23	23	15	2	5	4	7	4	5.58	4.85	11	4.6	3.6	2.6	3.6	68.9	68.0	68.6	68.5	72.3	61.6	75.7	69.9	10	20	1	6	0	0	2	
June....	0	6	33	29	3	8	1	1	9	3.29	.78	5, 15	5.2	4.9	4.5	4.9	74.2	73.8	73.7	73.9	74.5	64.4	79.0	72.6	4	23	3	10	0	0	16	
July	3	3	45	21	2	6	1	1	11	1.51	.56	7	5.1	4.3	2.6	4.0	73.8	72.8	73.6	73.4	72.9	59.2	76.0	69.4	10	17	4	15	0	0	26	
Aug	1	7	34	13	6	15	3	1	13	6.08	1.10	31	4.4	5.2	2.8	4.1	74.3	73.7	73.6	73.9	75.7	63.0	75.2	71.3	14	14	3	16	0	0	27	
Sept	4	25	17	3	7	5	1	7	21	5.17	1.24	1	5.0	5.1	2.6	4.2	74.0	73.6	74.3	74.0	79.1	65.0	80.4	75.0	9	17	4	15	0	0	8	
Oct	1	33	34	9	4	2	1	2	7	19.77	9.24	20, 21	4.7	5.0	4.0	4.6	73.5	72.2	72.5	72.7	85.3	73.6	83.1	80.7	13	12	6	16	0	0	1	
Nov	14	51	22	3	0	0	0	0	0	.84	.40	22	2.5	3.8	1.9	2.7	68.5	67.9	67.9	68.1	84.6	72.5	81.7	79.6	20	9	1	5	0	0	0	
Dec......	8	49	20	4	0	2	1	4	5	.97	.59	27	2.9	3.2	1.8	2.6	61.1	64.6	64.9	64.5	83.4	72.2	82.0	79.2	21	9	1	8	0	0	0	
Sums ..	69	274	332	176	50	59	16	40	79	48.24	.....	.....	54.1	51.5	33.6	46.3	837.7	831.3	835.6	834.8	958.2	796.3	956.0	903.6	148	178	39	119	0	0	8	
	Percentages.																								Percentages.							
Means .	6.3	25.0	30.3	16.1	4.6	5.4	1.5	3.6	7.2	.....	.....	.....	4.5	4.3	2.8	3.9	69.8	69.3	69.6	69.6	79.8	66.4	79.7	75.3	40.5	48.7	10.8	32.6	....	...	21.9	

NOTE.—7 a. m., 3 p. m., and 11 p. m , Washington time, correspond with 6.41 a. m., 2.41 p. m., and 10.41 p. m., local time.
Correction for instrumental error of barometer used: From 6.41 a. m , January 1, to 10.41 p. m., December 31, inclusive, .000 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; February, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

A. W. BROWNE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

KEY WEST, FLA.

[Latitude, 24° 34′ N.; longitude, 81° 49′ W. Magnetic variation, 4° E. Elevation of barometer above sea-level, 20 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 42 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.185	30.099	30.147	30.127	30.348	23	29.851	9	.497	70.0	75.9	71.0	72.3	82.0	7, 8	55.0	12	27.0	77.2	68.4	2,602	2,708	2,527	7,837	34	NW., NE.	9, 31
Feb	30.159	30.129	30.175	30.154	30.354	28	30.019	23	.335	72.8	78.5	73.8	75.0	82.4	23	65.0	27	17.4	79.4	71.6	2,689	3,136	2,938	8,763	39	NE.	27
Mar	30.052	30.025	30.059	30.045	30.329	1	29.781	25	.548	70.0	76.9	71.3	72.7	86.4	31	59.7	28	26.7	78.5	68.0	2,673	2,861	2,533	8,067	33	NW.	25
Apr	30.009	29.985	30.019	30.004	30.148	4	29.811	23	.337	76.9	84.1	76.5	79.2	90.0	30	69.0	17–24	21.0	85.6	74.1	1,978	2,533	2,229	6,740	44	N.	24
May	30.020	30.001	30.024	30.015	30.154	24	29.747	21	.407	78.7	82.8	77.0	79.5	90.8	31	70.4	20	20.4	84.6	74.5	1,858	2,284	2,103	6,245	36	SW.	1
June	30.038	30.023	30.050	30.037	30.131	22	29.931	8	.200	83.3	87.4	80.8	83.8	93.5	27	73.2	15	20.3	90.2	77.9	1,216	1,721	1,660	4,597	23	E., SE.	8, 30
July	30.092	30.081	30.106	30.093	30.191	22	30.013	20	.178	83.5	89.0	81.8	84.8	94.2	25	72.7	7	21.5	91.8	79.0	1,304	1,937	1,859	5,100	24	NE.	28
Aug	30.018	30.001	30.034	30.018	30.142	14	29.876	29	.266	82.8	88.0	82.1	84.3	94.7	2	74.0	31	20.7	91.2	78.9	1,471	1,871	1,512	4,854	37	SW.	30
Sept	29.977	29.947	29.989	29.971	30.136	28	29.802	21	.334	81.1	86.6	80.9	82.9	92.0	13	71.5	1	20.5	88.7	78.1	1,388	1,604	1,168	4,160	24	N., NE.	1, 20
Oct	29.996	29.952	29.999	29.982	30.124	3, 6	29.791	22	.333	78.4	81.9	78.3	79.5	91.0	2	71.0	21	20.0	84.4	75.9	1,703	2,072	1,809	5,584	24	NE., E.	8 9 15
Nov	30.062	30.015	30.066	30.048	30.187	4	29.901	25	.286	73.5	77.6	74.0	75.0	85.5	12	67.0	3	18.5	79.0	72.4	2,715	3,096	2,818	8,629	32	N.	2
Dec	30.133	30.092	30.140	30.122	30.226	20	29.998	26	.228	69.5	74.3	70.8	71.5	81.0	31	57.0	16	24.0	76.0	68.3	2,046	2,346	2,214	6,606	33	N.	15
Sums	360.691	360.350	360.808	360.616	......	....	......	...	.....	920.5	983.0	918.3	940.5	....	....	....	.....	....	1,006.6	887.1	23,733	28,169	25,370	77,272	....	....	....
																					Averages.						
Means	30.058	30.029	30.067	30.051	30.354	*28	29.747	†21	.....	76.7	81.9	76.5	78.4	94.7	‡2	55.0	§12	....	83.9	73.9	1,977.8	2,347.4	2,114.2	......	....	....	....

* February. † May. ‡ August. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 3 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	4	25	22	25	5	1	0	7	4	2. 82	1. 15	25, 26	5. 7	4. 9	2. 3	4. 3	66. 4	67. 0	67. 1	66. 8	88. 0	74. 4	88. 0	83. 8	11	15	5	10	0	0	0	
Feb	3	21	50	10	0	0	0	0	0	. 80	. 25	10, 11	4. 9	4. 2	2. 3	3. 8	68. 1	67. 6	68. 0	67. 9	85. 4	69. 3	82. 3	79. 0	11	14	3	8	0	0	0	
Mar	15	24	14	10	11	11	1	6	1	. 87	. 61	9, 10	5. 3	4. 3	4. 0	4. 5	63. 1	62. 5	63. 4	63. 0	79. 0	61. 9	76. 5	72. 5	10	13	8	8	0	0	0	
Apr	6	7	18	34	10	4	3	4	4	. 54	. 53	24	3. 8	3. 0	2. 2	3. 0	68. 8	67. 6	68. 0	68. 1	77. 1	58. 6	76. 1	70. 6	15	15	0	2	0	0	0	
May	10	23	23	15	2	5	4	7	4	5. 58	4. 85	11	4. 6	3. 6	2. 6	3. 6	68. 9	68. 0	68. 6	68. 5	72. 3	61. 6	75. 7	69. 9	10	20	1	6	0	0	2	
June....	0	6	33	29	3	8	1	1	9	3. 29	. 78	5, 15	5. 2	4. 9	4. 5	4. 9	74. 2	73. 8	73. 7	73. 9	74. 5	64. 4	79. 0	72. 6	4	23	3	10	0	0	16	
July	3	3	43	21	2	6	1	1	11	1. 51	. 56	7	5. 1	4. 3	2. 6	4. 0	73. 8	72. 8	73. 6	73. 4	72. 9	59. 2	76. 0	69. 4	10	17	4	15	0	0	26	
Aug	1	7	34	13	6	15	3	1	13	6. 08	1. 10	31	4. 4	5. 2	2. 8	4. 1	74. 3	73. 7	73. 6	73. 9	75. 7	63. 0	75. 2	71. 3	14	14	3	16	0	0	27	
Sept	4	25	17	3	7	5	1	7	21	5. 17	1. 24	1	5. 0	5. 1	2. 6	4. 2	74. 0	73. 6	74. 3	74. 0	79. 1	65. 6	80. 4	75. 0	9	17	4	15	0	0	8	
Oct	1	33	34	9	4	2	1	2	7	19. 77	9. 24	20, 21	4. 7	5. 0	4. 0	4. 6	73. 5	72. 2	72. 5	72. 7	85. 3	73. 6	83. 1	80. 7	13	12	6	16	0	0	1	
Nov	14	51	22	3	0	0	0	0	0	. 84	. 40	22	2. 5	3. 8	1. 9	2. 7	68. 5	67. 9	67. 9	68. 1	84. 6	72. 5	81. 7	79. 6	20	9	1	5	0	0	0	
Dec......	8	49	20	4	0	2	1	4	5	. 97	. 59	27	2. 9	3. 2	1. 8	2. 6	61. 1	64. 6	64. 9	64. 5	83. 4	72. 2	82. 0	79. 2	21	9	1	8	0	0	0	
Sums ..	69	274	332	176	50	59	16	40	79	48. 24	.....	.....	54. 1	51. 5	33. 6	46. 3	837. 7	831. 3	835. 6	834. 8	958. 2	796. 3	956. 0	903. 6	148	178	39	119	0	0	8	
	Percentages.																								Percentages.							
Means .	6. 3	25. 0	30. 3	16. 1	4. 6	5. 4	1. 5	3. 6	7. 2	.....	.....	.....	4. 5	4. 3	2. 8	3. 9	69. 8	69. 3	69. 6	69. 6	79. 8	66. 4	79. 7	75. 3	40. 5	48. 7	10. 8	32. 6	....	...	21. 9	

NOTE.—7 a. m., 3 p. m., and 11 p. m , Washington time, correspond with 6.41 a. m., 2.41 p. m., and 10.41 p. m., local time.
Correction for instrumental error of barometer used: From 6.41 a. m , January 1, to 10.41 p. m., December 31, inclusive, .000 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; February, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

A. W. BROWNE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

KITTY HAWK, N. C.

[Latitude, 36° N.; longitude, 75° 42′ W. Magnetic variation, 2° 45′ W. Elevation of barometer above sea-level, 22 feet. Elevation of exposed thermometer above ground, 4 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In.		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles.	Miles.			
Jan	30.193	30.158	30.186	30.179	30.615	24	29.333	9	1.282	38.4	42.5	40.2	40.4	63.0	28	19.8	12	45.2	47.2	34.0	3,645	3,725	3,693	11,063	44	NE.	9
Feb	30.297	30.276	30.293	30.289	30.708	2	29 916	7	.792	44.8	50.1	46.1	47.0	76.0	17	32.0	10, 27	44.0	54.8	39.7	3,721	4,261	3,370	11,352	45	NE.	18
Mar	30.031	29.972	30.013	30.005	30.502	5	29.427	10	1.095	41.5	48.8	42.5	44.3	73.0	30	27.0	23	46.0	53.1	36.3	4,503	5,194	4,565	14,262	60	N.	15, 16
Apr	30.032	29.990	30.030	30.017	30.409	4	29.515	23	.894	51.2	57.0	51.8	53.3	81.0	6	36.0	3	45.0	61.6	47.0	4,056	4,218	4,393	12,667	48	NE.	1
May	30.014	29.970	29.990	29.991	30.279	18	29.424	21	.855	60.9	67.3	60.9	63.0	86.5	29	47.0	1	39.5	70.4	55.9	4,020	4,626	4,280	12,926	43	NE.	2
June	30.035	30.006	30.025	30.022	30.333	1	29.748	27	.585	72.9	79.9	72.3	75.0	94.0	19	59.0	1	35.0	82.1	68.8	2,871	3,415	3,462	9,748	35	SW.	19
July	30.062	30.033	30.046	30.047	30.301	21	29.739	24	.562	76.8	85.5	75.8	79.4	99.5	23	64.0	20	35.5	86.6	72.1	2,499	3,245	3,494	9,238	44	N.	24
Aug	30.039	30.017	30.038	30.031	30.190	5	29.795	29	.395	74.2	78.8	73.8	75.6	90.5	20	63.9	26	26.6	80.4	70.5	3,352	3,962	3,823	11,137	35	NE.	4
Sept	30.061	30.029	30.044	30.045	30.254	27	29.724	24	.530	69.8	74.9	70.1	71.6	87.5	14	59.0	8, 26	28.5	76.8	67.0	3,977	4,234	4,227	12,438	52	NE.	10
Oct	30.126	30.098	30.120	30.115	30.514	17	29.633	29	.881	62.5	66.2	62.7	63.8	88.0	2	49.9	25	38.1	68.5	59.3	4,421	4,753	4,456	13,630	46	NE.	15
Nov	30.222	30.172	30.199	30.198	30.597	16, 17	29.883	12	.714	50.8	59.0	52.3	54.0	78.2	11	29.0	16	49.2	61.7	46.9	1,407	1,500	1,231	*4,138	63	NE.	27
Dec	30.174	30.129	30.161	30.155	30.511	23	29.652	27	.859	44.4	50.7	46.0	47.0	67.5	8	23.0	16	44.5	53.5	40.7	3,431	3,370	3,233	10,034	44	NE.	2
Sums	361.286	360.830	361.145	361.093	......	.....	......	....	.....	688.2	760.7	694.5	714.4	....	...	...	.....	....	796.7	638.2	†40,496	†45,008	†42,996	†128,495	....	....	.....
																					Averages.						
Means	30.107	30.071	30.095	30.091	30.708	‡2	29.333	§9	.....	57.4	63.4	57.9	59.5	99.5	§23	19.8	‖12	....	66.4	53.2	3,681.5	4,091.2	3,908.7	....	....	....	.....

* For 10½ days. † Sum for 11 months. ‡ February. § July. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan......	19	31	4	4	1	14	8	12	0	8.16	2.25	9, 10	6.2	5.8	6.5	6.2	34.6	36.3	36.0	35.6	86.6	80.8	85.9	84.4	6	14	11	16	1	9	0	
Feb......	5	31	8	2	5	20	5	8	0	2.87	.94	24, 25	5.5	6.1	4.9	5.5	37.8	39.3	40.3	39.1	77.6	68.8	80.9	75.8	9	7	12	10	0	0	0	
Mar	11	34	5	2	2	22	8	9	0	6.28	2.32	19, 20	4.5	4.8	4.4	4.6	33.5	33.7	34.2	33.8	74.0	59.0	78.3	68.8	11	14	6	13	0	6	0	
Apr	10	35	3	8	8	19	4	3	0	8.78	3.04	23	5.3	5.3	5.0	5.2	47.6	48.0	47.7	47.8	88.1	73.5	86.4	82.7	9	11	10	14	0	0	0	
May	4	34	3	6	2	33	6	4	1	7.76	1.46	15, 16	4.7	4.6	4.3	4.5	55.5	57.4	56.9	56.6	83.4	73.9	87.3	81.5	10	15	6	14	0	0	0	
June	2	16	7	18	3	35	6	3	0	6.57	1.48	8	5.2	4.3	2.9	4.1	68.0	68.8	68.5	68.4	85.3	69.8	88.3	81.1	9	18	8	13	0	0	4	
July.....	4	21	9	9	7	27	12	4	0	3.98	1.50	9, 10	3.8	2.8	3.3	3.3	69.1	69.0	68.6	68.9	78.0	59.4	79.0	72.1	13	16	2	8	0	0	11	
Aug	5	41	13	10	4	17	3	0	0	12.39	8.53	15, 16	5.1	4.8	4.4	4.8	67.6	67.7	67.8	67.7	80.7	70.3	82.0	77.7	9	15	7	12	0	0	1	
Sept	1	38	8	8	3	17	11	3	1	7.73	2.71	10, 11	6.5	6.3	5.1	6.0	64.3	65.2	65.4	65.0	83.2	72.7	85.6	80.5	7	12	11	9	0	0	0	
Oct	6	45	12	9	4	9	3	4	1	3.80	.75	5, 6	6.0	6.5	5.8	6.1	57.7	57.6	57.9	57.7	84.8	75.7	85.1	81.9	8	10	13	15	0	0	0	
Nov	10	30	0	2	5	24	6	11	2	1.65	1.45	25, 26	4.5	3.7	3.1	3.8	42.7	44.4	44.8	44.0	75.0	62.1	77.1	71.4	11	17	2	6	0	2	0	
Dec......	10	30	3	6	1	21	7	15	0	2.89	.59	23, 24	4.2	4.9	4.0	4.4	37.6	40.4	38.6	38.9	77.8	69.5	76.4	74.6	12	13	6	11	0	3	0	
Sums ..	87	386	75	84	45	258	79	76	5	72.86	...	......	61.5	59.9	53.7	58.5	616.0	627.6	626.7	623.5	974.5	835.5	987.3	932.5	114	162	89	141	1	20	16	
	Percentages.																								Percentages.							
Means .	7.9	35.3	6.8	7.7	4.1	23.6	7.2	6.9	0.5	.....	.....	......	5.1	5.0	4.5	4.9	51.3	52.3	52.2	52.0	81.2	69.6	82.3	77.7	31.2	44.4	24.4	38.6	0.3	5.5	4.4	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.05 a. m., 3.05 p. m., and 11.05 p. m., local time.
Correction for instrumental error of barometer used: From 7.05 a. m., January 1, to 11.05 p. m., December 31, inclusive, +.009 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; February, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

WESLEY BLAKE,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

KITTY HAWK, N. C.

[Latitude, 36° N.; longitude, 75° 42′ W. Magnetic variation, 2° 45′ W. Elevation of barometer above sea-level, 22 feet. Elevation of exposed thermometer above ground, 4 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.193	30.158	30.186	30.179	30.615	24	29.333	9	1.282	38.4	42.5	40.2	40.4	65.0	28	19.8	12	45.2	47.2	34.0	3,645	3,725	3,693	11,063	44	NE.	9
Feb	30.297	30.276	30.293	30.289	30.708	2	29 916	7	.792	44.8	50.1	46.1	47.0	76.0	17	32.0	10, 27	44.0	54.8	39.7	3,721	4,261	3,370	11,352	45	NE.	18
Mar	30.031	29.972	30.013	30.005	30.502	5	29.427	10	1.095	41.5	48.8	42.5	44.3	73.0	30	27.0	23	46.0	53.1	36.3	4,503	5,194	4,565	14,262	60	N.	15, 16
Apr	30.032	29.990	30.030	30.017	30.409	4	29.515	23	.894	51.2	57.0	51.8	53.3	81.0	6	36.0	8	45.0	61.6	47.0	4,056	4,218	4,393	12,667	48	NE.	1
May	30.014	29.970	29.990	29.991	30.279	18	29.424	21	.855	60.9	67.3	60.9	63.0	86.5	29	47.0	1	39.5	70.4	55.9	4,020	4,626	4,280	12,926	43	NE.	2
June	30.035	30.006	30.025	30.022	30.333	1	29.748	27	.585	72.9	79.9	72.3	75.0	94.0	19	59.0	1	35.0	82.1	68.8	2,871	3,415	3,462	9,748	35	SW.	19
July	30.062	30.033	30.046	30.047	30.301	21	29.739	24	.562	76.8	85.5	75.8	79.4	99.5	23	64.0	20	35.5	86.6	72.1	2,499	3,245	3,494	9,238	44	N.	24
Aug	30.039	30.017	30.036	30.031	30.190	5	29.795	29	.395	74.2	78.8	73.8	75.6	90.5	20	63.9	28	26.6	80.4	70.5	3,352	3,962	3,823	11,137	35	NE.	4
Sept	30.061	30.029	30.044	30.045	30.254	27	29.724	24	.530	69.8	74.9	70.1	71.6	87.5	14	59.0	8, 26	28.5	76.8	67.0	3,977	4,234	4,227	12,438	52	NE.	10
Oct	30.126	30.098	30.120	30.115	30.514	17	29.633	29	.881	62.5	66.2	62.7	63.8	88.0	2	49.9	25	38.1	68.5	59.3	4,421	4,753	4,456	13,630	46	NE.	15
Nov	30.222	30.172	30.199	30.198	30.597	16, 17	29.883	12	.714	50.8	59.0	52.3	54.0	78.2	11	29.0	16	49.2	61.7	46.9	1,407	1,500	1,231	*4,138	63	NE.	27
Dec	30.174	30.129	30.161	30.155	30.511	23	29.652	27	.859	44.4	50.7	46.0	47.0	67.5	8	23.0	16	44.5	53.5	40.7	3,431	3,370	3,233	10,034	44	NE.	2
Sums..	361.286	360.850	361.145	361.093	......	.....	......	....	.....	688.2	760.7	694.5	714.4	....	...	...	.....	....	796.7	638.2	†40,496	†45,003	†42,996	†128,495	....	....	.....
																					Averages.						
Means.	30.107	30.071	30.095	30.091	30.708	‡2	29.333	§9	.....	57.4	63.4	57.9	59.5	90.5	§23	19.8	‖12	....	66.4	53.2	3,681.5	4,091.2	3,908.7	....	....	....	.....

* For 10½ days. † Sum for 11 months. ‡ February. § July. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	19	31	4	4	1	14	8	12	0	8.16	2.25	9, 10	6.2	5.8	6.5	6.2	34.6	36.3	36.0	35.6	86.6	80.8	85.9	84.4	6	14	11	16	1	9	0	
Feb	5	31	8	2	5	20	5	8	0	2.87	.94	24, 25	5.5	6.1	4.9	5.5	37.8	39.3	40.3	39.1	77.6	68.8	80.9	75.8	9	7	12	10	0	0	0	
Mar	11	34	5	2	2	22	8	9	0	6.28	2.32	19, 20	4.5	4.8	4.4	4.6	33.5	33.7	34.2	33.8	74.0	59.0	73.3	68.8	11	14	6	13	0	6	0	
Apr	10	35	3	8	8	19	4	3	0	8.78	3.04	23	5.3	5.3	5.0	5.2	47.6	48.0	47.7	47.8	88.1	73.5	86.4	82.7	9	11	10	14	0	0	0	
May	4	34	3	6	2	33	6	4	1	7.76	1.46	15, 16	4.7	4.6	4.3	4.5	55.5	57.4	56.9	56.6	83.4	73.9	87.3	81.5	10	15	6	14	0	0	0	
June	2	16	7	18	3	35	6	3	0	6.57	1.48	8	5.2	4.3	2.9	4.1	68.0	68.8	68.5	68.4	85.3	69.8	88.3	81.1	9	18	8	18	0	0	4	
July	4	21	9	9	7	27	12	4	0	3.98	1.50	9, 10	3.8	2.8	3.3	3.3	69.1	69.0	68.6	68.9	78.0	59.4	79.0	72.1	13	16	2	8	0	0	11	
Aug	5	41	13	10	4	17	3	0	0	12.39	8.53	15, 16	5.1	4.8	4.4	4.8	67.6	67.7	67.8	67.7	80.7	70.3	82.0	77.7	9	15	7	12	0	0	1	
Sept	1	38	8	8	3	17	11	3	1	7.73	2.71	10, 11	6.5	6.3	5.1	6.0	64.3	65.2	65.4	65.0	83.2	72.7	85.6	80.5	7	12	11	9	0	0	0	
Oct	6	45	12	9	4	9	3	4	1	3.80	.75	5, 6	6.0	6.5	5.8	6.1	57.7	57.6	57.9	57.7	84.8	75.7	85.1	81.9	8	10	13	15	0	0	0	
Nov	10	30	0	2	5	24	6	11	2	1.65	1.45	25, 26	4.5	3.7	3.1	3.8	42.7	44.4	44.8	44.0	75.0	62.1	77.1	71.4	11	17	2	6	0	2	0	
Dec	10	30	3	6	1	21	7	15	0	2.89	.59	23, 24	4.2	4.9	4.0	4.4	37.6	40.4	38.6	38.9	77.8	69.5	76.4	74.6	12	13	6	11	0	3	0	
Sums	87	386	75	84	45	258	79	76	5	72.86	...	......	61.5	59.9	53.7	58.5	616.0	627.6	626.7	628.5	974.5	835.5	987.3	932.5	114	162	89	141	1	20	16	
	Percentages.																								Percentages.							
Means	7.9	35.3	6.8	7.7	4.1	23.6	7.2	6.9	0.5	......	....	......	5.1	5.0	4.5	4.9	51.3	52.3	52.2	52.0	81.2	69.6	82.8	77.7	31.2	44.4	24.4	38.6	0.8	5.5	4.4	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.05 a. m., 3.05 p. m., and 11.05 p. m., local time.

Correction for instrumental error of barometer used: From 7.05 a. m., January 1, to 11.05 p. m., December 31, inclusive, +.009 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.020; Febr uary, 0.020; March, 0.020; April, 0.020; May, 0.020; June, 0.020; July, 0.020; August, 0.020; September, 0.020; October, 0.020; November, 0.020; December, 0.020.

WESLEY BLAKE,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

KNOXVILLE, TENN.

[Latitude, 35° 56′ N.; longitude, 83° 58′ W. Magnetic variation, 2° 30′ E. Elevation of barometer above sea-level, 980 feet. Elevation of exposed thermometer above ground, 72 feet. Elevation of rain-gauge above ground, 77 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.143	29.095	29.121	29.120	29.590	22	28.659	10	.931	32.6	43.5	38.1	38.1	70.0	27	1.5	12	68.5	47.6	30.1	1,276	1,606	1,485	4,367	24	W.	21, 31
Feb	29.241	29.215	29.240	29.232	29.623	27	28.865	7	.758	40.9	50.9	44.5	45.4	78.0	16	24.2	27	53.8	54.8	36.6	1,314	1,827	1,508	4,649	34	SW.	11
Mar	29.037	28.982	29.018	29.012	29.433	1	28.624	31	.809	38.4	52.3	43.7	44.8	70.0	30	24.0	16	46.0	55.1	35.6	1,549	2,340	2,053	5,942	30	W.	10
Apr	28.990	28.944	28.978	28.971	29.309	3	28.527	23	.782	52.3	67.2	56.0	58.5	85.7	13	33.3	3	52.4	69.7	48.4	1,096	1,856	1,770	4,722	35	SW.	22
May	29.036	28.983	29.000	29.006	29.235	6	28.505	20	.730	57.1	73.2	62.2	64.2	86.1	9	37.3	24	48.8	75.7	53.3	1,009	1,877	1,797	4,683	26	NW.	14
June	29.039	28.990	29.009	29.013	29.236	2	28.802	10	.434	67.9	81.0	71.9	73.6	90.0	17	54.0	1	36.0	84.3	65.2	812	1,672	1,443	3,927	20	SW.	10
July	29.105	29.062	29.077	29.081	29.339	22	28.822	12	.517	70.7	83.5	73.5	75.9	96.0	22	58.2	11	37.8	87.0	66.9	781	1,732	1,290	3,803	24	SW.	8
Aug	29.082	29.029	29.058	29.056	29.214	31	28.899	28	.315	66.5	82.4	70.5	73.1	94.0	21	53.2	30	40.8	84.9	64.8	709	1,417	1,246	3,372	20	W.	13
Sept	29.084	29.012	29.048	29.048	29.256	27	28.803	24	.453	61.2	79.7	67.4	69.4	92.0	4	47.0	27	45.0	81.9	59.6	837	1,386	1,356	3,579	22	SE.	18
Oct	29.102	29.059	29.094	29.085	29.356	17	28.655	29	.701	57.1	70.5	60.1	62.6	83.9	13	40.3	31	43.6	72.5	55.2	1,046	1,440	1,230	3,716	32	SW.	29
Nov	29.220	29.148	29.191	29.186	29.636	16	28.915	9	.721	41.4	56.7	46.6	48.2	76.2	21	14.1	16	62.1	59.6	38.7	932	1,453	1,228	3,643	22	N. SW. NW.	12 22 26
Dec	29.139	29.128	29.142	29.136	29.363	10	28.701	27	.662	36.0	47.4	39.8	41.1	63.0	6	19.0	16	44.0	49.9	32.2	882	1,354	1,203	3,439	32	W.	27
Sums..	349.218	348.647	348.976	348.946	......	....	......	....	......	622.1	788.3	674.3	694.9	....	....	......	....	....	823.0	586.6	12,273	19,960	17,609	49,842	...	....	.....
																					Averages.						
Means.	29.102	29.054	29.081	29.079	29.636	*16	28.505	†20	......	51.8	65.7	56.2	57.9	96.0	‡22	1.5	§12	....	68.6	48.9	1,022.8	1,663.3	1,467.4	......	...	....	.....

*November. †May. ‡July. §January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	11	21	7	2	2	30	12	6	2	7.94	2.54	20	6.9	6.6	5.8	6.4	30.1	32.6	33.1	31.9	90.6	69.8	83.8	81.4	4	14	13	16	4	16	0	
Feb	16	21	2	1	3	18	8	9	6	3.46	1.04	4, 5	6.8	6.7	4.8	6.1	36.7	37.1	37.6	37.1	85.4	64.6	78.6	76.2	9	5	14	15	0	8	0	
Mar	12	16	7	1	2	30	14	8	3	4.01	2.08	30, 31	6.0	5.8	4.3	5.4	31.4	29.3	32.3	31.0	76.4	45.4	66.4	62.7	7	14	10	10	0	12	0	
Apr	11	13	10	4	2	25	11	8	6	8.17	3.75	22, 23	4.9	5.9	4.1	5.0	47.0	43.3	46.0	45.6	82.9	46.1	73.1	67.4	10	12	8	16	0	0	0	
May	10	19	4	2	1	32	8	6	11	3.31	0.78	15, 29	4.7	4.8	3.9	4.5	51.4	48.8	51.6	50.6	81.5	44.9	70.0	65.5	11	15	5	10	0	0	0	
June	10	9	5	1	3	37	7	10	8	2.99	1.16	6, 7	5.2	5.9	3.8	5.0	63.6	62.3	65.1	63.7	86.6	54.2	79.5	73.4	6	22	2	11	0	0	0	
July	10	17	4	2	3	21	18	9	9	3.59	0.87	17	2.8	5.6	3.2	3.9	64.4	61.7	65.4	63.8	81.0	50.0	75.5	68.8	10	19	2	13	0	0	11	
Aug	12	31	7	0	4	18	8	8	10	2.48	1.08	2	3.8	5.5	2.9	3.9	62.8	60.1	63.3	62.1	88.3	48.9	79.0	72.1	11	17	3	8	0	0	5	
Sept	7	22	1	3	2	26	7	7	15	2.53	0.90	23, 24	4.8	5.1	3.4	4.4	56.7	55.7	58.1	56.8	86.1	45.6	73.9	68.5	10	16	4	7	0	0	1	
Oct	17	21	4	0	6	23	6	4	12	4.66	1.43	6	6.3	6.0	4.5	5.6	55.0	57.4	56.4	56.3	92.9	65.3	88.6	82.3	9	10	12	14	0	0	0	
Nov	7	35	4	3	2	18	5	6	10	4.18	2.62	22	4.8	4.7	3.0	4.2	37.0	36.4	37.8	37.1	85.8	51.1	72.6	69.8	15	8	7	7	1	9	0	
Dec	6	24	13	4	2	8	15	10	11	3.35	0.89	24	4.9	5.6	3.9	4.8	32.7	33.5	34.2	33.5	88.5	61.9	80.9	77.1	10	12	9	12	1	15	0	
Sums ..	129	249	68	23	32	286	119	86	103	50.67	....	......	61.4	68.2	47.6	59.2	568.8	558.2	581.5	569.5	1,026.0	647.8	921.9	865.2	112	164	89	139	6	60	17	
	Percentages.																								Percentages.							
Means .	11.8	22.7	6.2	2.1	2.9	26.1	10.9	7.9	9.4	.....	...	......	5.1	5.7	4.0	4.9	47.4	46.5	48.5	47.5	85.5	54.0	76.8	72.1	30.7	44.9	24.4	38.1	1.6	16.4	4.7	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.32 a. m., 2.32 p. m., and 10.32 local time.

Corrections for instrumental errors of barometer used: From 6.32 a. m., January 1, to 10.32 p. m., June 30, inclusive, —.010 inch; from 6.32 a. m., July 1, to 10.32 p. m., December 31, inclusive, +.023 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.080; February, 1.080; March, 1.060; April, 1.040; May, 1.020; June, 1.010; July, 1.000; August, 1.010; September, 1.020; October, 1.040; November, 1.070; December, 1.060.

JOHN A. CODY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

LA CROSSE, WIS.

[Latitude, 43° 49′ N.; longitude, 91° 15′ W. Magnetic variation, 9° E. Elevation of barometer above sea-level, 725 feet. Elevation of exposed thermometer above ground, 40 feet. Elevation of rain-gauge above ground, 67 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.304	29.290	29.316	29.303	29.769	23	28.540	30	1.229	1.2	8.3	5.3	4.9	34.0	30	—30.0	21	64.0	14.0	—4.5	1,679	2,112	1,821	5,612	32	NW.	30
Feb	29.443	29.413	29.421	29.426	29.897	1	28.767	16	1.130	10.7	21.6	18.8	17.0	45.0	28	—21.0	1	66.0	24.0	6.6	1,549	1,904	1,776	5,229	22	NW.	16
Mar	29.259	29.240	29.254	29.251	29.797	7	28.563	17	1.234	22.2	32.0	27.5	27.2	50.0	17	— 3.0	7	55.0	34.5	18.3	1,705	2,431	2,114	6,250	36	NW.	15
Apr	29.139	29.100	29.110	29.116	29.472	2	28.405	10	1.067	42.4	54.4	48.6	48.5	73.0	13	21.0	1	52.0	56.7	39.3	1,923	2,352	2,576	6,851	33	SW., NE.	15, 22
May	29.140	29.116	29.114	29.123	29.460	11	28.577	18	.883	49.5	57.8	54.7	54.0	78.0	18	31.0	21	47.0	60.7	46.2	1,981	2,603	2,227	6,811	36	SW.	18
June ...	29.124	29.102	29.099	29.108	29.342	30	28.685	11	.657	63.5	73.3	68.2	68.3	*87.0	28	50.0	3	37.0	74.6	59.4	1,475	2,335	1,917	5,727	36	W.	11
July ...	29.195	29.168	29.159	29.174	29.533	18	28.820	12	.713	67.1	78.2	71.8	72.4	95.0	1	52.0	8	43.0	79.0	64.2	1,583	1,936	1,936	5,455	28	W., NW.	3, 12, 20, 26
Aug.....	29.292	29.265	29.258	29.272	29.543	6	28.762	21	.781	61.8	74.7	67.9	68.1	89.0	17	52.0	23	37.0	75.7	59.6	1,337	2,110	1,556	5,003	25	W., S.	20, 21, 22
Sept ...	29.307	29.282	29.291	29.293	29.678	9	28.834	24	.844	52.0	63.4	57.7	57.7	79.0	1	35.0	8	44.0	64.9	50.1	1,292	1,931	1,502	4,725	25	N.	16
Oct	29.326	29.297	29.310	29.311	29.821	15	28.705	29	1.116	41.9	51.3	47.4	46.9	80.0	8	27.0	20	53.0	53.1	40.7	1,575	1,943	1,924	5,442	28	W.	31
Nov.....	29.245	29.210	29.215	29.223	29.870	28	28.705	25	1.165	32.3	41.3	37.8	37.1	59.2	19, 20	3.0	15	56.2	45.4	27.8	2,258	2,641	2,287	7,186	36	S.	27
Dec	29.261	29.257	29.274	29.264	29.669	22	28.590	17	1.079	20.2	28.1	24.5	24.3	53.0	12	—10.0	19	63.0	31.6	16.7	2,130	2,211	1,967	6,308	38	NW.	14
Sums..	351.035	350.740	350.821	350.864	.....	.....	.....	.....	.....	464.8	584.4	530.2	526.4	.....	.....	.....	.....	.....	614.2	424.4	20,487	26,509	23,603	70,599	...	....	......
																					Averages.						
Means.	29.253	29.228	29.235	29.239	29.897	†1	28.405	‡10	......	38.7	48.7	44.2	43.9	95.0	§1	—30.0	‖21	....	51.2	35.4	1,707.2	2,209.0	1,966.9	......	...	....	......

* Nine 11 p. m. observations missed. † February. ‡ April. § July. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Any 3 consecutive8 hourly measurements.		Cloudiness in tenths).				Dew-point.				Relative humidity (per cent.).				Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
											Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.								
1883.										In.	In.						°	°	°	°												
Jan	21	1	0	6	16	12	19	16	2	1.54	.28	30	4.0	4.5	3.9	4.1	—4.4	1.0	—1.8	—1.7	78.2	72.3	72.9	74.5	8	20	3	15	30	31	0	
Feb	9	1	0	9	21	10	18	16	0	1.25	.55	15, 16	3.8	3.6	4.7	4.0	3.4	10.9	10.3	8.2	72.8	62.7	68.8	68.1	10	12	6	9	21	27	0	
Mar	18	4	1	4	16	10	13	27	0	.13	.08	25, 26	6.1	5.1	4.1	5.1	13.8	20.1	17.4	17.1	69.4	61.2	64.9	65.2	7	15	9	5	11	30	0	
Apr	12	13	8	8	15	11	7	15	1	1.49	.53	20	5.8	5.0	4.6	5.1	30.3	32.2	34.1	32.2	63.7	45.7	58.8	56.1	8	13	9	12	0	4	0	
May	18	11	4	5	20	8	13	14	0	3.87	1.00	13, 14	6.2	6.5	4.0	5.6	38.9	37.4	41.4	39.2	67.8	50.8	62.5	60.4	8	12	11	16	0	1	0	
June	13	1	3	7	28	12	11	15	0	3.92	1.41	11	5.1	5.7	3.9	4.9	5..8	53.9	55.6	53.8	68.2	53.1	64.8	62.0	10	13	7	10	0	0	0	
July	14	0	3	5	32	15	12	11	1	11.03	2.60	20	6.1	5.4	4.5	5.3	58.8	60.3	61.4	60.2	75.5	55.7	70.5	67.2	8	13	10	11	0	0	3	
Aug	10	3	2	7	32	16	9	10	4	1.71	.85	11, 12	3.5	6.0	2.8	4.1	53.8	55.2	57.8	55.6	75.2	52.4	70.5	66.0	11	15	5	7	0	0	0	
Sept	22	3	0	7	28	10	3	14	3	4.92	2.00	23, 24	4.1	5.0	3.8	4.3	46.0	46.0	49.4	47.1	80.2	55.2	74.7	70.0	12	10	8	11	0	0	0	
Oct	13	5	2	18	18	6	15	14	2	1.68	.58	8, 9	5.6	7.1	5.8	6.2	34.9	35.0	37.3	35.7	76.5	57.2	68.7	67.5	7	10	14	10	0	2	0	
Nov	8	0	0	2	41	7	14	18	0	1.09	.61	25	4.7	5.7	3.2	4.5	25.0	30.2	29.5	28.2	74.5	64.9	72.3	70.6	11	14	5	3	2	16	0	
Dec	17	4	0	6	33	5	14	14	0	1.06	.57	6, 7	5.2	4.4	4.7	4.8	13.5	19.5	17.6	16.9	75.1	71.1	74.7	73.6	12	10	9	9	15	24	0	
Sums	175	46	23	84	300	122	148	184	13	33.69	....	......	60.2	64.0	50.0	58.0	365.8	401.7	410.0	392.5	877.1	702.3	824.1	801.2	112	157	96	118	79	135	3	
	Percentages.																								Percentages.							
Means	16.0	4.2	2.1	7.7	27.4	11.1	13.5	16.8	1.2	....	...	......	5.0	5.3	4.2	4.8	30.5	33.5	34.2	32.7	73.1	58.5	68.7	66.8	30.7	43.0	26.3	32.3	21.6	37.0	0.1	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.03 a. m., 2.03 p. m., and 10.03 p. m., local time.

Correction for instrumental error of barometer used: From 6.03 a. m., January 1, to 10.03 p. m., December 31, inclusive, —0.007 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.840; February, 0.840; March, 0820; April, 0.800; May, 0.760; June, 0.760; July, 0.750; August, 0.750; September, 0.770; October, 0.790; November, 0.820; December, 0.850.

S. C. EMERY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

LEAVENWORTH, KANS.

[Latitude, 39° 19′ N.; longitude, 94° 57′ W. Magnetic variation, 10° E. Elevation of barometer above sea-level, 842 feet. Elevation of exposed thermometer above ground, 35 feet. Elevation of rain-gauge above ground, 48 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.306	29.247	29.287	29.280	29.751	22	28.565	12	1.186	13.6	24.6	19.9	19.4	50.0	12	−10.0	19, 20	60.0	29.4	10.5	1,612	1,844	1,720	5,182	36	NW.	19
Feb	29.403	29.370	29.385	29.386	29.911	17	28.533	15	1.378	22.0	33.1	28.5	27.9	66.0	15, 28	−12.0	4	78.0	39.1	19.6	1,042	1,525	1,306	3,903	30	NW.	24
Mar	29.211	29.179	29.200	29.197	29.800	3	28.623	18	1[illegible]77	33.3	45.6	39.4	39.4	71.0	17	14.5	19	56.5	49.8	30.9	1,890	2,365	2,185	6,440	34	N.	18
Apr	29.003	28.964	28.990	28.986	29.491	24	28.329	22	1.162	48.0	64.7	56.1	56.3	86.5	13	33.0	7	53.5	68.6	45.0	1,694	2,782	2,670	7,146	36	SW.	14
May	29.056	29.025	29.031	29.037	29.459	11	28.533	13	.926	54.0	67.7	60.8	60.8	89.0	2	39.0	5	50.0	71.9	50.8	1,710	2,822	2,534	7,066	30	S.	9
June	29.083	29.041	29.052	29.059	29.260	3	28.703	11	.557	65.4	77.5	70.3	71.1	92.0	29, 30	47.0	3	45.0	81.0	61.2	1,226	2,019	1,756	5,001	38	NW.	11
July	29.142	29.113	29.118	29.124	29.445	18	28.835	12	.610	71.1	83.8	75.4	76.8	96.5	1	59.0	9, 17, 30	37.5	86.5	67.5	1,297	2,204	1,966	5,467	34	N.	13
Aug	29.209	29.184	29.186	29.193	29.410	5	28.875	21	.535	65.8	80.6	71.8	72.7	93.0	21	53.0	24	40.0	82.9	63.0	635	1,497	1,311	3,443	20	S.	21, 31
Sept	29.199	29.158	29.179	29.179	29.508	5	28.895	21	.613	55.9	72.7	61.7	63.4	92.0	1	42.0	22	50.0	74.9	53.0	693	1,450	1,212	3,355	24	NW.	20
Oct	29.188	29.141	29.183	29.171	29.608	20	28.459	1	1.149	47.2	59.3	52.3	53.0	85.0	7, 8	34.0	20, 26	51.0	62.3	45.2	1,243	1,772	1,630	4,645	40	NW.	1
Nov	29.228	29.172	29.211	29.204	29.813	12	28.546	25	1.267	38.1	51.2	42.7	44.0	73.0	25	16.0	14, 15	57.0	54.8	33.9	1,287	1,913	1,774	4,974	32	NW.	5, 25
Dec.* ...	29.222	29.192	29.236	29.217	29.685	14	28.535	26	1.150	30.5	40.8	34.1	35.1	65.0	1	4.0	27	61.0	45.7	26.7	1,465	1,894	1,951	5,310	33	NW.	26
Sums..	350.250	349.786	350.058	350.033	......	...	......	...	.....	544.9	701.6	613.0	619.9	..	...	......	....	.....	746.9	507.3	15,794	24,087	22,111	61,992	..	....	.....
																					Averages.						
Means.	29.188	29.149	29.172	29.170	29.911	†17	28.329	‡22	.....	45.4	58.5	51.1	51.7	96.5	§1	−12.0	†4	... .	62.2	42.3	1,316.2	2,007.2	1,842.6	......	.....	....	.....

* One 7 a. m. observation missed. † February. ‡ April. § July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1888.										*In.*	*In.*						°	°	°	°												
Jan	16	7	3	9	13	0	3	28	14	.75	.38	16	4.6	6.7	4.4	5.2	7.6	14.8	12.9	11.8	76.6	65.7	74.0	72.1	8	14	9	9	17	31	0	
Feb	15	5	6	6	15	1	2	19	15	2.92	1.23	23, 24	5.0	5.7	4.4	5.0	16.3	22.0	20.7	19.7	78.4	64.4	72.4	71.7	12	6	10	13	8	21	0	
Mar	25	10	6	12	13	6	1	18	2	1.05	.35	24, 25	4.5	5.1	4.9	4.8	25.5	26.6	28.5	26.9	78.1	49.3	65.7	62.7	10	12	9	6	0	17	0	
Apr	12	6	4	14	30	2	4	12	6	.97	.33	14	5.2	4.7	3.4	4.4	38.1	35.1	39.2	37.5	69.4	37.2	55.6	54.1	9	14	7	9	0	0	0	
May	16	2	6	13	28	2	3	17	6	7.33	2.44	13	5.3	5.0	3.9	4.7	45.6	45.1	48.3	46.3	73.7	47.4	64.8	62.0	9	15	7	12	0	0	0	
June	29	1	2	13	17	4	0	17	7	10.84	2.41	16, 17	4.5	4.9	3.7	4.4	59.3	61.0	62.5	60.9	81.1	58.2	76.8	72.0	10	17	3	14	0	0	3	
July	14	4	3	13	44	4	1	5	5	3.58	2.15	29, 30	3.1	4.3	4.0	3.8	63.3	65.1	65.4	64.6	76.7	54.9	72.0	67.9	15	11	5	13	0	0	13	
Aug	21	1	4	15	24	4	2	5	17	1.95	.72	12, 13	4.3	4.4	2.7	3.8	61.2	61.7	63.7	02.2	85.4	53.6	76.2	71.7	16	8	7	9	0	0	1	
Sept ...	12	7	4	12	12	1	1	12	29	1.57	.41	21, 22	4.3	4.2	2.3	3.6	50.3	51.3	51.4	51.0	82.0	49.3	70.3	67.2	13	13	4	7	0	0	1	
Oct	19	8	18	12	15	0	4	9	8	8.31	1.80	12, 13	6.2	6.6	5.6	6.1	42.4	43.9	44.8	43.7	83.8	59.4	76.7	73.8	7	9	15	16	0	0	0	
Nov	11	2	1	4	41	5	2	11	13	2.02	1.66	5	2.6	3.6	2.9	3.0	30.4	31.6	30.2	30.7	74.5	50.2	62.5	62.4	14	14	2	3	1	12	0	
Dec.[1] ...	10	2	6	5	21	9	4	24	12	.65	.25	6	3.5	5.5	4.2	4.4	23.3	24.6	24.6	24.2	74.2	54.2	69.0	65.8	13	12	6	7	5	21	0	
Sums..	200	55	63	128	273	38	27	177	134	41.94	.....	.....	53.1	60.7	46.4	53.2	463.3	482.8	402.2	479.5	028.9	643.8	836.0	802.9	136	145	84	118	31	102	18	
	Percentages.																								Percentages.							
Means.	18.3	5.0	5.8	11.7	24.9	3.5	2.5	16.2	12.2	.....	.....	.....	4.4	5.1	3.9	4.5	38.6	40.2	41.0	39.9	77.4	53.6	69.7	66.9	37.3	39.7	23.0	32.3	8.5	27.9	4.9	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.48 a. m., 1.48 p. m., and 9.48 p. m., local time.

Correction for instrumental error of barometer used: From 5.48 a. m., January 1, to 9.48 p. m., December 31, inclusive, +.017 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, .900; February, .950; March, .940; April, .910; May, .880; June, .870; July, .860; August, .860; September, .880; October, .900; November, .940; December, .960.

T. S. OUTRAM,
Corporal, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

LEWISTON, IDAHO.

[Latitude, 46° 8′ N.; longitude, 117° 5′ W. Magnetic variation, 21° 15′ E. Elevation of barometer above sea-level, 780 (B) feet. Elevation of exposed thermometer above ground, 22 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°			°	°	*Miles.*	*Miles*	*Miles.*	*Miles.*			
Jan	29.393	29.376	29.345	29.371	30.016	19	28.894	25	1.122	24.4	28.6	27.8	26.9	51.1	6	—14.2	19	65.8	33.2	20.4	995	766	865	2,626	22	SW.	6
Feb	29.507	29.574	29.501	29.527	30.114	4	28.596	13	1.518	17.6	25.4	21.8	21.6	54.0	22, 28	—13.5	4	67.5	30.2	14.9	672	837	816	2,325	23	NE.	1
Mar	29.248	29.238	29.193	29.226	29.631	2	28.655	28	.976	39.1	51.6	48.6	46.4	71.7	20	31.5	3	40.2	59.5	36.6	491	484	757	1,732	25	W.	17
Apr	29.128	29.114	29.097	29.113	29.444	14	28.660	19	.784	42.5	55.8	50.8	49.7	74.8	29	33.2	13	41.1	60.7	40.5	522	800	1,118	2,440	28	NW.	15
May	29.159	29.141	29.101	29.134	29.626	19	28.681	12	.945	49.5	65.7	60.9	58.7	82.8	30	36.8	3	46.0	71.7	48.7	616	735	1,130	2,481	24	E.	7
June	29.167	29.132	29.095	29.131	29.535	5	28.801	10	.734	56.8	78.2	72.4	69.0	98.0	29	43.6	5	54.4	83.1	54.6	511	477	964	1,952	25	W.	4
July	29.192	29.150	29.092	29.145	29.367	24	28.940	12	.427	62.5	82.7	80.6	75.3	98.1	8	50.5	16	47.6	90.0	59.1	585	475	1,007	2,067	25	W.	14
Aug.[1]	29.182	29.155	29.103	29.147	29.443	19	28.934	3	.509	62.1	78.3	76.3	72.2	98.0	15	45.5	19	52.5	87.1	57.6	501	355	904	1,760	24	W.	17
Sept	29.169	29.137	29.097	29.134	29.611	20	28.475	29	1.136	50.6	67.1	61.8	59.8	[2]93.5	5	34.0	26	59.5	76.0	47.7	165	171	336	672	20	NW.	18
Oct	29.199	29.190	29.169	29.186	29.562	30	28.596	27	.966	42.4	52.5	48.4	47.8	[3]65.0	12	29.3	23	35.7	57.9	39.5	522	525	690	1,737	22	SW.	29
Nov	29.242	29.233	29.238	29.238	29.684	12	28.648	24	1.036	37.6	46.9	42.6	42.4	63.2	29	25.2	4	38.0	57.6	35.5	599	699	782	2,080	28	SE.	2
Dec	29.350	29.349	29.345	29.348	30.017	31	28.462	25	1.555	31.9	37.1	34.0	34.3	54.0	27	6.0	31	48.0	41.7	29.3	515	457	571	1,543	25	SW.	25
Sums	350.936	350.789	350.376	350.700	......	...	......	...	......	516.5	669.9	626.0	604.1	......	.....	......	...	....	748.7	484.4	6,694	6,781	9,940	23,415	....	....	....
																					Averages.						
Means	29.245	29.232	29.198	29.225	30.114	[4]4	28.462	[5]25	......	43.0	55.8	52.2	50.3	98.1	[6]8	—14.2	[7]19	....	62.4	40.4	557.8	565.1	828.3	......	....	....	....

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[1] One 7 a. m. observation missed.

[2] Four 11 p. m. observations missed.

[3] One 11 p. m. observation missed.

[4] February.

[5] December.

[6] July.

[7] January.

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	0	15	28	17	5	7	16	1	4	3.56	0.74	6	6.1	7.8	6.3	6.7	19.1	20.9	21.4	20.5	80.3	73.4	77.2	77.0	5	10	16	17	11	23	0	
Feb	0	15	23	9	8	12	6	1	15	0.82	0.36	18, 19	2.9	4.3	3.2	3.5	10.7	15.6	14.4	13.6	74.1	67.5	73.2	71.6	13	12	8	8	12	22	0	Four solar halos 28th.
Mar	1	7	27	6	5	2	19	12	14	3.21	1.51	28, 29	4.0	4.2	3.0	3.7	33.6	35.4	39.0	36.0	79.9	56.3	70.8	69.0	14	13	4	7	0	1	0	
Apr	2	6	22	17	4	3	18	6	12	1.12	0.40	30	5.9	6.6	3.5	5.3	35.1	31.2	35.8	34.0	75.5	41.5	58.0	58.3	7	16	7	11	0	0	0	Last frost 14th.
May	2	11	25	6	2	8	18	11	10	2.01	0.48	7, 8	5.5	4.8	4.0	4.8	42.6	41.2	44.5	42.8	79.2	43.0	57.4	59.9	8	17	6	12	0	0	0	
June	0	11	12	4	6	4	18	7	28	0.01	0.01	4	2.7	3.3	3.1	3.0	44.0	42.2	45.2	43.8	64.7	29.0	40.6	44.8	16	12	2	1	0	0	5	
July	3	6	13	3	0	4	21	11	31	0.00	0.00	....	2.0	1.1	3.1	2.1	41.8	41.9	42.8	42.2	48.4	24.6	27.2	33.4	19	12	0	0	0	0	15	
Aug[1]	1	11	9	22	0	14	5	14	16	([2])	([2])	4, 25	2.5	0.9	1.4	1.6	46.4	50.9	50.2	49.2	58.1	42.3	43.5	48.0	21	9	0	0	0	0	10	
Sept	0	20	2	15	0	1	2	7	43	0.04	0.03	18	1.8	1.7	1.7	1.7	39.6	42.2	42.4	41.4	67.2	42.6	51.3	53.7	19	11	0	2	0	0	2	First frost 20th.
Oct	0	28	3	14	0	9	4	5	30	1.84	0.33	16, 17	4.2	5.1	5.1	4.8	34.9	35.3	37.4	35.9	75.6	54.3	67.1	65.7	8	16	7	17	0	2	0	
Nov	0	22	2	22	1	12	3	5	23	1.86	0.73	23, 24	4.7	5.5	6.1	5.4	31.1	32.8	33.1	32.3	78.1	58.7	70.5	69.1	5	18	7	12	0	4	0	First snow 20th.
Dec	0	19	1	16	0	11	1	5	40	1.36	0.75	25	5.2	6.2	4.6	5.3	25.8	26.5	26.7	26.3	77.9	66.7	75.0	73.2	10	13	8	7	8	20	0	
Sums ..	9	171	167	151	26	87	131	85	266	15.83	.....	.....	47.5	51.5	45.1	47.9	404.7	416.1	432.8	418.0	859.0	599.9	711.8	723.7	145	159	60	94	26	72	32	
	Percentages.																									Percentages.						
Means .	.8	15.6	15.3	13.8	2.4	8.0	12.0	7.8	24.3	.....	.....	.....	4.0	4.3	3.8	4.0	33.7	34.7	36.1	34.8	71.6	50.0	59.3	60.3	39.8	43.7	16.5	25.8	7.1	19.7	8.8	

[1] One 7 a. m. observation missed.

[2] Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.20 a. m., 12.20 p. m., and 8.20 p. m., local time.

Corrections for instrumental errors of barometer used: From 4.20 a. m., January 1, to 4.20 a. m., September 30, inclusive, —0.004 inch. From 12.20 p. m., September 30, to 8.20 p. m., December 31, inclusive, +0.004 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.870; February, 0.870; March, 0.860; April, 0.850; May, 0.840; June, 0.820; July, 0.810; August, 0.810; September, 0.830; October, 0.850; November, 0.870; December, 0.880.

C. E. BUTLER,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

LITTLE ROCK, ARK.

[Latitude, 34° 45′ N.; longitude, 92° 6′ W. Magnetic variation, 8° E. Elevation of barometer above sea-level, 298 feet. Elevation of exposed thermometer above ground, 26 feet. Elevation of rain-gauge above ground, 57 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.873	29.837	29.866	29.859	30.389	22	20.463	30	.926	35.9	45.3	40.3	40.5	66.0	27	12.0	21	54.0	47.8	33.1	1,320	1,431	1,401	4,152	26	NW., N.	10, 27
Feb	29.981	29.928	29.937	29.955	30.523	27	29.389	24	1.134	41.2	48.6	45.1	45.0	74.0	15, 16	22.0	6, 18	52.0	53.4	36.9	1,254	1,460	1,268	3,982	22	N.	17
Mar	29.770	29.722	29.740	29.744	30.291	3	29.349	30	.942	46.8	58.0	52.6	52.5	76.0	18	34.0	20	42.0	61.9	44.0	1,104	1,603	1,604	4,311	23	N.	15
Apr	29.634	29.587	29.606	29.609	29.988	25	29.005	22	.983	56.6	70.4	62.6	63.2	86.0	14	46.0	3, 25	40.0	73.1	54.0	1,227	1,859	1,645	4,731	27	S.	14
May	29.685	29.653	29.656	29.665	29.962	5, 6	29.410	28	.552	61.9	75.4	67.3	68.2	87.0	18	44.0	22	43.0	79.0	59.0	928	1,831	1,566	4,325	24	S.	9
June	29.680	29.652	29.658	29.663	29.899	1	29.364	9	.535	71.9	84.7	76.4	77.7	97.0	21	57.0	1	40.0	88.6	69.2	392	1,142	943	2,477	28	N.	12
July.....	29.761	29.723	29.731	29.738	29.999	18	29.497	12	.592	74.2	87.3	79.1	80.2	94.0	16, 20, 21 23, 24, 30	64.0	10	30.0	90.8	71.2	738	1,442	1,287	3,467	22	SW.	4
Aug.....	29.764	20.732	29.740	29.745	29.932	5	29.573	11	.359	71.1	84.5	76.1	77.2	98.0	1	62.0	6	36.0	87.7	69.1	505	1,213	1,064	2,782	30	NW.	23
Sept.....	29.769	29.716	20.745	29.743	29.914	9	20.589	13	.825	02.2	79.8	69.3	70.4	95.0	2	48.0	23, 24	47.0	82.2	60.0	327	929	946	2,202	20	NW.	21
Oct.*	29.754	29.722	29.743	29.740	30.097	31	29.320	28	.777	61.7	71.9	65.8	66.5	90.0	5	45.0	26	45.0	74.7	59.9	1,234	1,519	1,381	4,134	21	SW.	6
Nov	29.884	29.838	29.857	29.860	30.397	16	29.321	21	1.076	49.6	61.6	54.9	55.4	79.0	9	26.0	16	53.0	64.9	47.6	1,000	1,518	1,166	3,679	40	SW.	21
Dec	29.860	29.816	29.854	29.843	30.311	15	29.316	26	.995	43.9	54.1	47.6	48.5	74.0	1	28.0	15	46.0	57.7	40.2	1,112	1,388	1,344	4,038	24	N.	14
Sums..	357.415	356.926	357.153	357.164	.....	....	....	....	.....	667.0	821.6	737.1	745.3	....	....	....	......	....	861.8	644.6	11,141	17,330	15,615	44,280	..	....	.....
																					Averages.						
Means.	29.785	29.744	29.763	29.764	30.523	†27	29.005	‡22	.....	56.4	68.5	61.4	62.1	98.0	§1	12.0	‖21	....	71.8	53.7	928.4	1,444.2	1,301.2	......	..	....	.....

* One 11 p. m. observation missed. † February. ‡ April. § August. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 8 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	8	10	8	14	6	5	28	6	5.44	1.66	3	6.2	6.3	4.5	5.7	29.7	32.4	32.[illegible]	31.4	78.4	62.9	72.8	71.4	7	12	12	13	2	14	0	
Feb	17	7	11	5	11	5	2	10	16	6.47	1.70	23, 24	7.1	6.7	7.0	6.9	35.5	37.0	36.8	36.3	80.2	67.0	73.2	73.5	8	1	19	13	1	8	0	
Mar	20	7	10	2	13	14	4	10	13	4.24	1.96	30, 31	5.1	5.3	4.3	4.9	35.5	39.1	39.1	37.0	66.1	52.4	61.6	60.0	10	11	10	8	0	0	0	
Apr	11	4	7	18	18	8	5	12	7	8.92	4.57	5, 6	5.4	4.8	3.2	4.5	49.2	51.4	51.8	50.8	77.2	53.7	69.7	66.9	11	11	8	12	0	0	0	
May	7	6	10	8	26	2	4	10	25	4.17	1.70	9, 10	4.8	4.5	1.7	3.7	55.5	57.2	59.5	57.4	80.1	54.4	76.6	70.4	14	14	8	11	0	0	0	
June	10	3	3	3	17	11	5	5	33	3.01	.88	4, 5	4.2	4.6	1.9	3.6	67.8	69.7	69.6	69.0	87.1	62.1	80.0	76.4	14	15	1	12	0	0	18	
July	2	10	11	15	15	10	4	7	19	4.83	1.77	3, 4	3.7	5.3	2.1	3.7	69.5	71.5	72.0	71.0	85.6	60.5	79.7	75.3	12	15	4	13	0	0	17	
Aug	8	18	11	7	9	5	1	11	23	2.30	.54	1, 2	3.2	4.8	1.6	3.2	67.2	66.7	69.9	67.9	87.7	57.2	82.0	75.6	19	9	3	10	0	0	10	
Sept	4	8	6	7	4	3	3	8	47	3.67	2.77	30	2.6	3.2	1.4	2.4	56.9	58.4	60.8	58.7	83.3	49.7	74.9	69.3	20	8	2	2	0	0	4	
Oct.[1]	6	18	12	16	8	11	4	7	10	5.55	2.02	19	6.6	6.1	4.1	5.6	57.9	59.0	59.5	58.8	87.5	66.5	80.5	78.2	6	16	8	11	0	0	0	
Nov	17	11	5	8	20	7	2	3	17	3.13	1.00	21	5.1	5.1	3.7	4.6	42.4	44.7	45.1	44.1	76.0	56.6	70.0	68.1	13	8	9	12	0	2	0	
Dec	12	10	1	14	14	7	4	23	8	3.89	1.38	29, 30	4.5	6.3	4.5	5.1	36.8	38.9	39.1	38.3	76.6	59.3	73.8	69.9	10	12	9	11	0	4	0	
Sums..	122	110	97	106	169	89	43	134	224	55.62	....	......	58.5	63.0	40.0	53.9	603.9	626.0	634.7	621.6	966.7	702.3	895.7	855.0	144	132	88	128	3	28	44	
	Percentages.																								Percentages.							
Means.	11.2	10.1	8.9	9.7	15.4	8.1	3.9	12.3	20.5	.....	....	......	4.9	5.2	3.3	4.5	50.3	52.2	52.9	51.8	80.6	58.5	74.6	71.2	39.8	36.0	24.2	35.1	0.8	7.8	12.1	

[1] One 11 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.59 a. m., 1.59 p. m., and 9.59 p. m., local time.
Correction for instrumental error of barometer used: From 5.59 a. m., January 1, to 9.59 p. m., December 31, inclusive, —.012 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, .330; February, .330; March, .330; April, .320; May, .310; June, .310; July, .310; August, .310; September, .310; October, .320; November, .330; December, .330.

W. U. SIMONS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

LOS ANGELES, CAL.

[Latitude, 34° 3′ N.; longitude, 118° 15′ W. Magnetic variation, 14° 45′ E. Elevation of barometer above sea-level, 371 feet. Elevation of exposed thermometer above ground, 58 feet. Elevation of rain-gauge above ground, 107 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.761	29.759	29.751	29.757	30.072	8	29.411	2	.661	46.5	62.6	51.4	53.5	82.0	30	30.0	20	52.0	64.5	42.1	1,788	1,843	1,894	5,525	34	E.	2
Feb	29.712	29.729	29.712	29.718	30.194	17	29.379	1	.815	45.0	61.3	50.7	52.3	82.0	26	28.0	6	54.0	63.0	41.7	1,817	1,322	1,880	4,519	28	W., NW.	14 15
Mar	29.669	29.685	29.674	29.676	29.829	29	29.503	29	.326	51.4	63.9	54.7	56.7	84.0	1	42.6	26	41.4	66.8	49.4	801	1,000	2,051	3,852	32	W.	29
Apr.	29.624	29.639	29.627	29.630	29.971	14	29.344	23	.627	48.3	68.4	55.2	57.3	89.0	16	39.0	14	50.0	70.4	46.6	1,186	1,312	2,638	5,136	42	W.	12
May	29.607	29.615	29.607	29.610	29.773	19	29.461	21	.312	53.8	73.1	59.3	62.1	100.0	21	39.5	16	60.5	75.7	51.7	936	1,310	2,625	4,871	24	SE., E.	6, 17
June	29.563	29.566	29.554	29.561	29.746	2	29.402	4	.344	59.7	81.8	64.9	68.8	100.0	27	52.0	13, 24	48.0	84.8	58.0	626	973	2,298	3,897	21	W.	16
July	29.596	29.604	29.581	29.594	29.733	23	29.467	3	.266	61.2	83.1	65.0	69.8	90.0	1, 24	52.5	28	37.5	85.0	60.1	700	845	2,517	4,062	16	SW., W.	6 23 29
Aug	29.591	29.602	29.591	29.505	29.695	16	29.502	2	.193	59.6	84.0	65.7	69.8	98.0	27	50.0	6	48.0	86.3	58.1	590	936	2,398	3,924	17	W.	31
Sept.....	29.539	29.552	29.536	29.542	29.650	30	29.363	22	.287	62.5	85.5	67.8	71.9	103.5	22	53.0	28	50.5	87.1	60.1	672	885	2,225	3,782	20	W.	6 20 22
Oct	29.597	29.609	29.604	29.603	29.805	8	29.253	2	.552	53.7	71.1	58.3	61.0	83.0	9	43.5	19	39.5	72.8	51.1	1,142	1,277	2,125	4,544	26	W.	26
Nov	29.671	29.673	29.672	29.672	29.835	12	29.523	19	.312	50.7	71.0	56.0	59.2	84.0	12 29	42.0	15, 18, 20, 24, 26	42.0	72.2	47.0	1,253	1,243	1,490	3,986	16	W.	2
Dec	29.702	29.709	29.708	29.706	29.978	31	29.408	4	.570	49.4	65.5	54.0	56.3	80.0	16	37.0	29	43.0	66.9	45.1	1,412	1,498	1,481	4,391	28	NW.	28
Sums..	355.632	355.742	355.617	355.664	......	...	......	...	.....	641.8	871.3	703.0	738.7	.....	....	....	....	....	895.5	611.0	12,423	14,444	25,622	52,489	....	....	....
																					Averages.						
Means	29.636	29.645	29.635	29.639	30.194	*17	29.253	†2	.....	58.5	72.6	58.6	61.6	103.5	‡22	28.0	*6	....	74.6	50.9	1,035.2	1,203.7	2,135.2	.....	....	....	....

* February. † October. ‡ September.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	14	30	13	12	5	3	10	5	1	1.62	1.55	1, 2	2.8	3.3	1.8	2.6	32.3	34.8	35.8	34.3	61.0	38.5	59.0	52.8	21	6	4	3	0	1	0	
Feb	6	18	8	17	9	4	12	6	4	3.47	2.04	12, 13	3.8	4.5	3.3	3.9	34.6	36.8	39.6	37.0	69.1	44.6	68.0	60.6	13	9	6	4	0	2	0	
Mar	4	10	0	11	10	8	29	5	16	2.87	1.67	28, 29	5.4	7.3	5.3	6.0	47.8	50.3	51.1	49.7	88.3	64.2	87.9	80.1	6	14	11	7	0	0	0	
Apr	8	13	7	5	6	5	32	7	7	0.15	0.08	24	4.7	3.7	2.7	3.7	42.5	46.2	45.6	44.8	82.7	48.7	73.2	68.2	10	18	2	3	0	0	0	Last frost 14th.
May	2	10	4	2	6	13	45	3	8	2.02	1.53	6	5.1	4.1	2.9	4.0	49.4	52.2	51.3	51.0	86.3	50.9	77.8	71.7	12	15	4	6	0	0	3	
June	0	13	2	2	5	12	51	1	4	0.03	0.02	11	4.0	2.3	3.2	3.2	56.1	59.8	58.6	58.2	88.0	48.9	80.5	72.5	15	12	3	2	0	0	6	
July	1	1	0	1	3	15	62	0	10	(*)	(*)	13	6.3	0.5	1.6	2.8	57.8	60.5	59.6	59.3	88.7	46.8	82.9	72.8	11	19	1	0	0	0	0	
Aug	0	4	0	2	2	7	63	2	13	0	0	......	3.4	1.1	0.5	1.7	55.2	61.1	59.5	58.6	85.6	46.7	81.0	71.1	20	10	1	0	0	0	8	
Sept	1	13	0	1	6	16	39	3	11	0	0	......	2.1	1.2	1.3	1.5	55.5	58.4	58.2	57.4	81.5	43.2	75.9	66.9	22	8	0	0	0	0	10	
Oct	5	18	6	4	6	12	26	7	9	1.42	1.37	27	4.6	3.8	2.0	3.5	47.4	48.8	52.0	49.4	80.2	47.5	80.0	69.2	13	14	4	2	0	0	0	
Nov	5	28	4	6	5	10	17	8	7	0	0	......	3.1	2.0	0.9	2.0	37.8	40.7	47.3	41.9	66.0	37.0	75.4	59.5	18	11	1	0	0	0	0	First frost 24th.
Dec	7	30	16	11	6	6	9	7	1	2.56	1.56	3, 4	2.4	2.5	2.0	2.3	39.9	42.2	44.1	42.1	72.7	46.3	72.3	63.8	22	7	2	6	0	0	0	
Sums	53	188	66	74	69	111	395	54	91	14.14	....	......	47.7	36.3	27.5	37.2	556.3	591.8	602.7	583.7	950.1	563.3	913.9	809.2	183	143	39	33	0	8	27	
	Percentages.																								Percentages.							
Means	4.8	17.2	5.5	6.8	6.3	10.1	36.1	4.9	8.3	....	....	......	4.0	3.0	2.3	3.1	46.4	49.3	50.2	48.6	79.2	46.9	76.2	67.4	50.1	39.2	10.7	9.0	0	0.8	7.4	

* Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.15 a. m., 12.15 p. m., and 8.15 p. m., local time.
Correction for instrumental error of barometer used: From 4.15 a. m., January 1, to 8.15 p. m., December 31, inclusive, +0.011 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.400; February, 0.400; March, 0.400; April, 0.400; May, 0.400; June, 0.390; July, 0.390, August, 0.390; September, 0.390; October, 0.400; November, 0.400; December, 0.400.

T. S. COLLINS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

LA CROSSE, WIS.

[Latitude, 43° 49′ N.; longitude, 91° 15′ W. Magnetic variation, 9° E. Elevation of barometer above sea-level, 725 feet. Elevation of exposed thermometer above ground, 40 feet. Elevation of rain-gauge above ground, 67 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.304	29.290	29.316	29.303	29.769	23	28.540	30	1.229	1.2	8.3	5.3	4.9	34.0	30	—30.0	21	64.0	14.0	—4.5	1,679	2,112	1,821	5,612	32	NW.	30
Feb	29.443	29.413	29.421	29.426	29.897	1	28.767	16	1.130	10.7	21.6	18.8	17.0	45.0	28	—21.0	1	66.0	24.0	6.6	1,549	1,904	1,776	5,229	22	NW.	16
Mar	29.259	29.240	29.254	29.251	29.797	7	28.563	17	1.234	22.2	32.0	27.5	27.2	50.0	17	— 3.0	7	55.0	34.5	18.3	1,705	2,431	2,114	6,250	36	NW.	15
Apr	29.139	29.100	29.110	29.116	29.472	2	28.405	10	1.067	42.4	54.4	48.6	48.5	73.0	13	21.0	1	52.0	56.7	39.3	1,923	2,352	2,576	6,851	33	SW., NE.	15, 22
May ...	29.140	29.116	29.114	29.123	29.460	11	28.577	18	.883	49.5	57.8	54.7	54.0	78.0	18	31.0	21	47.0	60.7	46.2	1,981	2,603	2,227	6,811	36	SW.	18
June	29.124	29.102	29.099	29.108	29.342	30	28.685	11	.657	63.5	73.3	68.2	68.3	*87.0	28	50.0	3	37.0	74.6	59.4	1,475	2,835	1,917	5,727	36	W.	11
July ...	29.195	29.168	29.159	29.174	29.533	18	28.820	12	.713	67.1	78.2	71.8	72.4	95.0	1	52.0	8	43.0	79.0	64.2	1,583	1,936	1,936	5,455	28	W., NW.	3, 12, 20, 26
Aug.....	29.292	29.265	29.258	29.272	29.543	6	28.762	21	.781	61.8	74.7	67.9	68.1	89.0	17	52.0	23	37.0	75.7	59.6	1,337	2,110	1,556	5,003	25	W., S.	20, 21, 22
Sept ...	29.307	29.282	29.291	29.293	29.678	9	28.834	24	.844	52.0	63.4	57.7	57.7	79.0	1	35.0	8	44.0	64.9	50.1	1,292	1,931	1,502	4,725	25	N.	16
Oct	29.326	29.297	29.310	29.311	29.821	15	28.705	29	1.116	41.9	51.3	47.4	46.9	80.0	8	27.0	20	53.0	53.1	40.7	1,575	1,943	1,924	5,442	28	W.	31
Nov.....	29.245	29.210	29.215	29.223	29.870	28	28.705	25	1.165	32.3	41.3	37.8	37.1	59.2	19, 20	3.0	15	56.2	45.4	27.8	2,258	2,641	2,287	7,186	36	S.	27
Dec	29.261	29.257	29.274	29.264	29.669	22	28.590	17	1.079	20.2	28.1	24.5	24.3	53.0	12	—10.0	19	63.0	31.6	16.7	2,130	2,211	1,967	6,308	38	NW.	14
Sums..	351.035	350.740	350.821	350.864	......	...	.....	...	......	464.8	584.4	530.2	526.4	.....	.....	......	...	....	614.2	424.4	20,487	26,509	23,603	70,599	...	....	......
																					Averages.						
Means.	29.253	29.228	29.235	29.239	29.897	†1	28.405	‡10	......	38.7	48.7	44.2	43.9	95.0	§1	—30.0	‖21	....	51.2	35.4	1,707.2	2,209.0	1,966.9	......	...	....	......

* Nine 11 p. m. observations missed.

† February.

‡ April.

§ July.

‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1863.										*In.*	*In.*						°	°	°	°												
Jan	21	1	0	6	16	12	19	16	2	1.54	.28	30	4.0	4.5	3.9	4.1	—4.4	1.0	—1.8	—1.7	78.2	72.3	72.9	74.5	8	20	3	15	30	31	0	
Feb	9	1	0	9	21	10	18	16	0	1.25	.55	15, 16	3.8	3.6	4.7	4.0	3.4	10.9	10.3	8.2	72.8	62.7	68.8	68.1	10	12	6	9	21	27	0	
Mar	18	4	1	4	16	10	13	27	0	.13	.08	25, 26	6.1	5.1	4.1	5.1	13.8	20.1	17.4	17.1	69.4	61.2	64.9	65.2	7	15	9	5	11	30	0	
Apr	12	13	8	8	15	11	7	15	1	1.49	.53	20	5.8	5.0	4.6	5.1	30.3	32.2	34.1	32.2	63.7	45.7	58.8	56.1	8	13	9	12	0	4	0	
May	18	11	4	5	20	8	13	14	0	3.87	1.00	13, 14	6.2	6.5	4.0	5.6	38.9	37.4	41.4	39.2	67.8	50.8	62.5	60.4	8	12	11	16	0	1	0	
June	13	1	3	7	28	12	11	15	0	3.92	1.41	11	5.1	5.7	3.9	4.9	51.8	53.9	55.6	53.8	68.2	53.1	64.8	62.0	10	13	7	10	0	0	0	
July......	14	0	3	5	32	15	12	11	1	11.03	2.60	20	6.1	5.4	4.5	5.3	58.8	60.3	61.4	60.2	75.5	55.7	70.5	67.2	8	13	10	11	0	0	3	
Aug	10	3	2	7	32	16	9	10	4	1.71	.85	11, 12	3.5	6.0	2.8	4.1	53.8	55.2	57.8	55.6	75.2	52.4	70.5	66.0	11	15	5	7	0	0	0	
Sept	22	3	0	7	28	10	3	14	3	4.92	2.00	23, 24	4.1	5.0	3.8	4.3	46.0	46.0	49.4	47.1	80.2	55.2	74.7	70.0	12	10	8	11	0	0	0	
Oct	13	5	2	18	18	6	15	14	2	1.68	.58	8, 9	5.6	7.1	5.8	6.2	34.9	35.0	37.3	35.7	76.5	57.2	68.7	67.5	7	10	14	10	0	2	0	
Nov	8	0	0	2	41	7	14	18	0	1.09	.61	25	4.7	5.7	3.2	4.5	25.0	30.2	29.5	28.2	74.5	64.9	72.3	70.6	11	14	5	3	2	16	0	
Dec.......	17	4	0	6	33	5	14	14	0	1.06	.57	6, 7	5.2	4.4	4.7	4.8	13.5	19.5	17.6	16.9	75.1	71.1	74.7	73.6	12	10	9	9	15	24	0	
Sums..	175	46	23	84	300	122	148	184	13	33.69	....	......	60.2	64.0	50.0	58.0	365.8	401.7	410.0	392.5	877.1	702.3	824.1	801.2	112	157	96	118	79	135	3	
	Percentages.																								Percentages.							
Means.	16.0	4.2	2.1	7.7	27.4	11.1	13.5	16.8	1.2	....	...	......	5.0	5.3	4.2	4.8	30.5	33.5	34.2	32.7	73.1	58.5	68.7	66.8	30.7	43.0	26.3	32.3	21.6	37.0	0.1	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.03 a. m., 2.03 p. m., and 10.03 p. m., local time.

Correction for instrumental error of barometer used: From 6.03 a. m., January 1, to 10.03 p. m., December 31, inclusive, —0.007 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.840; February, 0.840; March, 0820; April, 0.800; May, 0.760; June, 0.760; July, 0.750; August, 0.750; September, 0.770; October, 0.790; November, 0.820; December, 0.850.

S. C. EMERY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

LEAVENWORTH, KANS.

[Latitude, 39° 19′ N.; longitude, 94° 57′ W. Magnetic variation, 10° E. Elevation of barometer above sea-level, 842 feet. Elevation of exposed thermometer above ground, 85 feet. Elevation of rain-gauge above ground, 48 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.306	29.247	29.287	29.280	29.751	22	28.565	12	1.186	13.6	24.6	19.9	19.4	50.0	12	−10.0	19, 20	60.0	29.4	10.5	1,612	1,844	1,726	5,182	36	NW.	10
Feb	29.403	29.370	29.385	29.386	29.911	17	28.533	15	1.378	22.0	33.1	28.5	27.9	66.0	15, 28	−12.0	4	78.0	39.1	19.6	1,042	1,525	1,396	3,963	30	NW.	24
Mar	29.211	29.179	29.200	29.197	29.800	3	28.623	18	1.177	33.3	45.6	39.4	39.4	71.0	17	14.5	19	56.5	49.8	30.9	1,890	2,365	2,185	6,440	34	N.	18
Apr	29.003	28.964	28.990	28.986	29.491	24	28.329	22	1.162	48.0	64.7	56.1	56.3	86.5	13	33.0	7	53.5	68.6	45.0	1,694	2,782	2,670	7,146	36	SW.	14
May	29.056	29.025	29.031	29.037	29.459	11	28.533	13	.926	54.0	67.7	60.8	60.8	89.0	2	39.0	5	50.0	71.9	50.8	1,710	2,822	2,534	7,066	30	S.	9
June	29.083	29.041	29.052	29.059	29.260	3	28.703	11	.557	65.4	77.5	70.3	71.1	92.0	29, 30	47.0	3	45.0	81.0	61.2	1,226	2,019	1,756	5,001	38	NW.	11
July	29.142	29.113	29.118	29.124	29.445	18	28.835	12	.610	71.1	83.8	75.4	76.8	96.5	1	59.0	9, 17, 30	37.5	86.5	67.5	1,297	2,204	1,966	5,467	34	N.	13
Aug	29.209	29.184	29.186	29.193	29.410	5	28.875	21	.535	65.8	80.6	71.8	72.7	93.0	21	53.0	24	40.0	82.9	63.0	635	1,497	1,311	3,443	20	S.	21, 31
Sept	29.199	29.158	29.179	29.179	29.508	5	28.895	21	.613	55.9	72.7	61.7	63.4	92.0	1	42.0	22	50.0	74.9	53.0	693	1,450	1,212	3,355	24	NW.	20
Oct	29.188	29.141	29.183	29.171	29.608	20	28.459	1	1.149	47.2	59.3	52.3	53.0	85.0	7, 8	34.0	20, 26	51.0	62.3	45.2	1,243	1,772	1,630	4,645	40	NW.	1
Nov	29.228	29.172	29.211	29.204	29.813	12	28.546	25	1.267	38.1	51.2	42.7	44.0	73.0	25	16.0	14, 15	57.0	54.8	33.9	1,287	1,913	1,774	4,974	32	NW.	5, 25
Dec.*	29.222	29.192	29.236	29.217	29.685	14	28.535	26	1.150	30.5	40.8	34.1	35.1	65.0	1	4.0	27	61.0	45.7	26.7	1,465	1,894	1,951	5,310	33	NW.	26
Sums	350.250	349.786	350.058	350.033	......	...	......	...	.....	544.9	701.6	613.0	619.9	..	...	......	......	.....	746.9	507.3	15,794	24,087	22,111	61,992	..	....	.....
																					Averages.						
Means	29.188	29.149	29.172	29.170	29.911	†17	28.329	‡22	.....	45.4	58.5	51.1	51.7	96.5	§1	−12.0	†4	...	62.2	42.3	1,316.2	2,007.2	1,842.6	.....	.....	....	.....

* One 7 a. m. observation missed. † February. ‡ April. § July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	16	7	3	9	13	0	3	28	14	.75	.38	16	4.6	6.7	4.4	5.2	7.6	14.8	12.9	11.8	76.6	65.7	74.0	72.1	8	14	9	9	17	31	0	
Feb	15	5	6	6	15	1	2	19	15	2.92	1.23	23, 24	5.0	5.7	4.4	5.0	16.3	22.0	20.7	19.7	78.4	64.4	72.4	71.7	12	6	10	13	8	21	0	
Mar	25	10	6	12	13	6	1	18	2	1.05	.35	24, 25	4.5	5.1	4.9	4.8	25.5	26.6	28.5	26.9	78.1	49.3	65.7	62.7	10	12	9	6	0	17	0	
Apr	12	6	4	14	30	2	4	12	6	.97	.33	14	5.2	4.7	3.4	4.4	38.1	35.1	39.2	37.5	69.4	37.2	55.6	54.1	9	14	7	9	0	0	0	
May	16	2	6	13	28	2	8	17	6	7.83	2.44	13	5.3	5.0	3.9	4.7	45.6	45.1	48.3	46.3	73.7	47.4	64.8	62.0	9	15	7	12	0	0	0	
June	29	1	2	13	17	4	0	17	7	10.84	2.41	16, 17	4.5	4.9	3.7	4.4	59.3	61.0	62.5	60.9	81.1	58.2	70.8	72.0	10	17	3	14	0	0	8	
July	14	4	3	13	44	4	1	5	5	3.58	2.15	29, 30	3.1	4.3	4.0	3.8	63.3	65.1	65.4	64.6	76.7	54.9	72.0	67.9	15	11	5	13	0	0	13	
Aug	21	1	4	15	24	4	2	5	17	1.95	.72	12, 13	4.3	4.4	2.7	3.8	61.2	61.7	63.7	62.2	85.4	53.6	76.2	71.7	16	8	7	9	0	0	1	
Sept ...	12	7	4	12	12	1	1	12	29	1.57	.41	21, 22	4.3	4.2	2.3	3.6	50.3	51.3	51.4	51.0	82.0	49.3	70.3	67.2	13	13	4	7	0	0	1	
Oct	19	8	18	12	15	0	4	9	8	8.31	1.80	12, 13	6.2	6.6	5.6	6.1	42.4	43.9	44.8	43.7	83.8	50.4	76.7	73.8	7	9	15	16	0	0	0	
Nov	11	2	1	4	41	5	2	11	13	2.02	1.66	5	2.6	3.6	2.9	3.0	30.4	31.6	30.2	30.7	74.5	50.2	62.5	62.4	14	14	2	3	1	12	0	
Dec.[1] ...	10	2	6	5	21	0	4	24	12	.65	.25	6	3.5	5.5	4.2	4.4	23.3	24.6	24.6	24.2	74.2	54.2	69.0	65.8	13	12	6	7	5	21	0	
Sums..	200	55	63	128	273	38	27	177	134	41.94	......	.....	53.1	60.7	46.4	53.2	463.3	482.8	492.2	479.5	928.9	643.8	836.0	802.9	130	145	84	118	31	102	18	
	Percentages.																								Percentages.							
Means.	18.3	5.0	5.8	11.7	24.9	3.5	2.5	16.2	12.2	.....	......	.....	4.4	5.1	3.9	4.5	38.6	40.2	41.0	39.9	77.4	53.6	69.7	66.9	37.8	39.7	23.0	32.3	8.5	27.9	4.9	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.48 a. m., 1.48 p. m., and 9.48 p. m., local time.

Correction for instrumental error of barometer used: From 5.48 a. m., January 1, to 9.48 p. m., December 31, inclusive, +.017 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, .960; February, .950; March, .940; April, .910; May, .880; June, .870; July, .860; August, .860; September, .880; October, .900; November, .940; December, .960.

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Corporal, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

LEWISTON, IDAHO.

[Latitude, 46° 8′ N.; longitude, 117° 5′ W. Magnetic variation, 21° 15′ E. Elevation of barometer above sea-level, 780 (B) feet. Elevation of exposed thermometer above ground, 22 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°			°	°	*Miles.*	*Miles*	*Miles.*	*Miles.*			
Jan	29.393	29.376	29.345	29.371	30.016	19	28.894	25	1.122	24.4	28.6	27.8	26.9	51.1	6	—14.2	19	65.3	33.2	20.4	995	766	865	2,626	22	SW.	6
Feb	29.507	29.574	29.501	29.527	30.114	4	28.596	18	1.518	17.6	25.4	21.8	21.6	54.0	22, 28	—13.5	4	67.5	30.2	14.9	672	837	816	2,325	23	NE.	1
Mar	29.248	29.238	29.193	29.226	29.631	2	28.655	28	.976	39.1	51.6	48.6	46.4	71.7	20	31.5	3	40.2	59.5	36.6	491	484	757	1,732	25	W.	17
Apr	29.128	29.114	29.097	29.113	29.444	14	28.660	19	.784	42.5	55.8	50.8	49.7	74.8	29	33.2	13	41.1	60.7	40.5	522	800	1,118	2,440	28	NW.	15
May	29.159	29.141	29.101	29.134	29.626	19	28.681	12	.945	49.5	65.7	60.9	58.7	82.8	30	36.8	3	46.0	71.7	48.7	616	735	1,130	2,481	24	E.	7
June	29.167	29.132	29.095	29.131	29.535	5	28.801	10	.734	56.3	78.2	72.4	69.0	98.0	29	43.6	5	54.4	83.1	54.6	511	477	964	1,952	25	W.	4
July	29.192	29.150	29.092	29.145	29.367	24	28.940	12	.427	62.5	82.7	80.6	75.3	98.1	8	50.5	16	47.6	90.0	59.1	585	475	1,007	2,067	25	W.	14
Aug.[1]	29.182	29.155	29.103	29.147	29.443	19	28.934	3	.509	62.1	78.3	76.3	72.2	98.0	15	45.5	19	52.5	87.1	57.6	501	355	904	1,760	24	W.	17
Sept	29.169	29.137	29.097	29.134	29.611	20	28.475	29	1.136	50.6	67.1	61.8	59.8	[2]93.5	5	34.0	26	59.5	76.0	47.7	165	171	336	672	20	NW.	18
Oct	29.199	29.190	29.169	29.186	29.562	30	28.596	27	.966	42.4	52.5	48.4	47.8	[3]65.0	12	29.3	23	35.7	57.9	39.5	522	525	690	1,737	22	SW.	29
Nov	29.242	29.233	29.238	29.238	29.684	12	28.648	24	1.036	37.6	46.9	42.6	42.4	63.2	29	25.2	4	38.0	57.6	35.5	599	699	782	2,080	28	SE.	2
Dec	29.350	29.349	29.345	29.348	30.017	31	28.462	25	1.535	31.9	37.1	34.0	34.3	54.0	27	6.0	31	48.0	41.7	29.3	515	457	571	1,543	25	SW.	25
Sums	350.936	350.789	350.376	350.700	......	...	......	...	......	516.5	669.9	626.0	604.1	......	.....	......	...	....	748.7	484.4	6,694	6,781	9,940	23,415	....	....	....
																					Averages.						
Means	29.245	29.232	29.198	29.225	30.114	[4]4	28.462	[5]25	......	43.0	55.8	52.2	50.3	98.1	[6]8	—14.2	[7]19	....	62.4	40.4	557.8	565.1	828.3	......	....	....	....

[1] One 7 a.m. observation missed. [2] Four 11 p.m. observations missed. [3] One 11 p.m. observation missed. [4] February. [5] December. [6] July. [7] January.

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	0	15	28	17	5	7	16	1	4	3.56	0.74	6	6.1	7.8	6.3	6.7	19.1	20.9	21.4	20.5	80.3	73.4	77.2	77.0	5	10	16	17	11	23	0	
Feb	0	15	23	9	3	12	6	1	15	0.82	0.36	18, 19	2.9	4.3	3.2	3.5	10.7	15.6	14.4	13.6	74.1	67.5	73.2	71.6	13	12	3	8	12	22	0	Four solar halos 28th.
Mar	1	7	27	6	5	2	19	12	14	3.21	1.51	28, 29	4.0	4.2	3.0	3.7	33.6	35.4	39.0	36.0	79.9	56.3	70.8	69.0	14	13	4	7	0	1	0	
Apr	2	6	22	17	4	3	18	6	12	1.12	0.40	30	5.9	6.6	3.5	5.3	35.1	31.2	35.8	34.0	75.5	41.5	58.0	58.3	7	16	7	11	0	0	0	Last frost 14th.
May	2	11	25	6	2	8	18	11	10	2.01	0.48	7, 8	5.5	4.8	4.0	4.8	42.6	41.2	44.5	42.8	79.2	43.0	57.4	59.9	8	17	6	12	0	0	0	
June.....	0	11	12	4	6	4	18	7	28	0.01	0.01	4	2.7	3.3	3.1	3.0	44.0	42.2	45.2	43.8	64.7	29.0	40.6	44.8	16	12	2	1	0	0	5	
July	3	6	13	3	0	4	21	11	31	0.00	0.00	....	2.0	1.1	3.1	2.1	41.8	41.9	42.8	42.2	48.4	24.6	27.2	33.4	19	12	0	0	0	0	15	
Aug[1]	1	11	9	22	0	14	5	14	16	(2)	(2)	4, 25	2.5	0.9	1.4	1.6	46.4	50.9	50.2	49.2	58.1	42.3	43.5	48.0	21	9	0	0	0	0	10	
Sept	0	20	2	15	0	1	2	7	43	0.04	0.03	18	1.8	1.7	1.7	1.7	39.6	42.2	42.4	41.4	67.2	42.6	51.3	53.7	19	11	0	2	0	0	2	First frost 20th.
Oct	0	28	3	14	0	9	4	5	30	1.84	0.33	16, 17	4.2	5.1	5.1	4.8	34.9	35.3	37.4	35.9	75.6	54.3	67.1	65.7	8	16	7	17	0	2	0	
Nov	0	22	2	22	1	12	3	5	23	1 86	0.73	23, 24	4.7	5.5	6.1	5.4	31.1	32.8	33.1	32.3	78.1	58.7	70.5	69.1	5	18	7	12	0	4	0	First snow 20th.
Dec	0	19	1	16	0	11	1	5	40	1.36	0.75	25	5.2	6.2	4.6	5.3	25.8	26.5	26.7	26.3	77.9	66.7	75.0	73.2	10	13	8	7	3	20	0	
Sums ..	9	171	167	151	26	87	131	85	266	15.83	.....	.....	47.5	51.5	45.1	47.9	404.7	416.1	432.8	418.0	859.0	599.9	711.8	723.7	145	159	60	94	26	72	32	
	Percentages.																								Percentages.							
Means .	.8	15.6	15.8	13.8	2.4	8.0	12.0	7.8	24.3	.....	.....	.....	4.0	4.3	3.8	4.0	33.7	34.7	36.1	34.8	71.6	50.0	59.3	60.3	39.8	43.7	16.5	25.8	7.1	19.7	8.8	

[1] One 7 a. m. observation missed.

[2] Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.20 a. m., 12.20 p. m., and 8.20 p. m., local time.

Corrections for instrumental errors of barometer used: From 4.20 a. m., January 1, to 4.20 a. m., September 30, inclusive, —0.004 inch. From 12.20 p. m., September 30, to 8.20 p. m., December 31, inclusive, +0.004 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.870; February, 0.870; March, 0.860; April, 0.850; May, 0.840; June, 0.820; July, 0.810; August, 0.810; September, 0.830; October, 0.850; November, 0.870; December, 0.880.

C. E. BUTLER,
Private, Signal Corps, U. S. A.

APPENDIX 75.—*Meteorological summary for the year ending December 31, 1883*—Continued.

LITTLE ROCK, ARK.

[Latitude, 34° 45′ N.; longitude, 92° 6′ W. Magnetic variation, 8° E. Elevation of barometer above sea-level, 298 feet. Elevation of exposed thermometer above ground, 26 feet. Elevation of rain-gauge above ground, 57 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.873	29.837	29.866	29.859	30.389	22	29.463	30	.926	35.9	45.3	40.3	40.5	66.0	27	12.0	21	54.0	47.8	33.1	1,320	1,431	1,401	4,152	26	NW., N.	10, 27
Feb	29.981	29.928	29.937	29.955	30.523	27	29.389	24	1.134	41.2	48.6	45.1	45.0	74.0	15, 16	22.0	6, 18	52.0	53.4	36.9	1,254	1,460	1,268	3,982	22	N.	17
Mar	29.770	29.722	29.740	29.744	30.201	3	29.349	30	.942	46.8	58.0	52.6	52.5	76.0	18	34.0	20	42.0	61.9	44.0	1,104	1,603	1,604	4,311	23	N.	15
Apr	29.634	29.587	29.606	29.609	29.988	25	29.005	22	.983	56.6	70.4	62.6	63.2	86.0	14	46.0	3, 25	40.0	73.1	54.0	1,227	1,859	1,645	4,731	27	S.	14
May	29.685	29.653	29.650	29.665	29.962	5, 6	29.410	28	.552	61.9	75.4	67.3	68.2	87.0	18	44.0	22	43.0	79.0	59.0	928	1,831	1,566	4,325	24	S.	9
June	29.680	29.652	29.658	29.663	29.899	1	29.364	9	.535	71.9	84.7	76.4	77.7	97.0	21	57.0	1	40.0	88.6	69.2	392	1,142	943	2,477	28	N.	12
July	29.761	29.723	29.731	29.738	29.999	18	29.497	12	.502	74.2	87.3	79.1	80.2	94.0	{ 16, 20, 21 } { 23, 24, 30 }	64.0	10	30.0	90.8	71.2	738	1,442	1,287	3,467	22	SW.	4
Aug	29.764	20.732	29.740	29.745	29.932	5	29.573	11	.359	71.1	84.5	76.1	77.2	98.0	1	62.0	6	36.0	87.7	69.1	505	1,213	1,064	2,782	30	NW.	23
Sept	29.769	29.716	29.745	29.743	29.914	9	20.589	13	.325	62.2	79.8	69.3	70.4	95.0	2	48.0	23, 24	47.0	82.2	60.0	827	929	946	2,202	20	NW.	21
Oct.*	29.754	29.722	29.743	29.740	30.097	31	29.320	28	.777	61.7	71.9	65.8	66.5	90.0	5	45.0	26	45.0	74.7	59.9	1,234	1,519	1,381	4,134	21	SW.	6
Nov	29.884	29.838	29.857	29.860	30.397	16	29.321	21	1.076	49.6	61.6	54.9	55.4	79.0	9	26.0	16	53.0	64.9	47.6	1,000	1,513	1,166	3,679	40	SW.	21
Dec	29.860	29.816	29.854	29.843	30.311	15	29.316	26	.995	43.9	54.1	47.6	48.5	74.0	1	28.0	15	46.0	57.7	40.2	1,112	1,388	1,344	4,038	24	N.	14
Sums..	357.415	356.926	357.153	357.164	.....	....	......	....	.....	667.0	821.6	737.1	745.3	....	....	....	.....	....	861.8	644.6	11,141	17,330	15,615	44,280	..	....	.....
																					Averages.						
Means.	29.785	29.744	29.763	29.764	30.523	†27	29.005	‡22	.....	56.4	68.5	61.4	62.1	98.0	§1	12.0	‖21	....	71.8	58.7	928.4	1,444.2	1,301.2	......	..	....	.....

*One 11 p. m. observation missed. † February. ‡ April. § August. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent.).				Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
											Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.								
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	8	10	8	14	6	5	28	6	5.44	1.66	3	6.2	6.3	4.5	5.7	29.7	32.4	32.6	31.4	78.4	62.9	72.8	71.4	7	12	12	13	2	14	0	
Feb	17	7	11	5	11	5	2	10	16	6.47	1.70	23, 24	7.1	6.7	7.0	6.9	35.5	37.0	36.3	36.3	80.2	67.0	73.2	73.5	8	1	19	13	1	8	0	
Mar	20	7	10	2	13	14	4	10	13	4.24	1.96	30, 31	5.1	5.3	4.3	4.9	35.5	39.1	39.1	37.9	66.1	52.4	61.6	60.0	10	11	10	8	0	0	0	
Apr	11	4	7	18	18	8	5	12	7	3.92	4.57	5, 6	5.4	4.8	3.2	4.5	49.2	51.4	51.8	50.8	77.2	53.7	69.7	66.9	11	11	8	12	0	0	0	
May	7	6	10	3	26	2	4	10	25	4.17	1.70	9, 10	4.[illegible]	4.5	1.7	3.7	55.5	57.2	59.5	57.4	80.1	54.4	76.6	70.4	14	14	3	11	0	0	0	
June	10	3	3	3	17	11	5	5	33	3.01	.88	4, 5	4.2	4.6	1.9	3.6	67.8	69.7	69.6	69.0	87.1	62.1	80.0	76.4	14	15	1	12	0	0	18	
July	2	10	11	15	15	10	4	7	19	4.83	1.77	3, 4	3.7	5.3	2.1	3.7	69.5	71.5	72.0	71.0	85.6	60.5	79.7	75.3	12	15	4	18	0	0	17	
Aug	8	18	11	7	9	5	1	11	23	2.30	.54	1, 2	3.2	4.8	1.6	3.2	67.2	66.7	69.9	67.9	87.7	57.2	82.0	75.6	19	9	3	10	0	0	10	
Sept	4	8	6	7	4	3	3	8	47	3.67	2.77	30	2.0	3.2	1.4	2.4	56.9	58.4	60.8	58.7	83.3	49.7	74.9	69.3	20	8	2	2	0	0	4	
Oct.[1]	6	18	12	16	8	11	4	7	10	5.55	2.02	19	6.6	6.1	4.1	5.6	57.9	59.0	59.5	58.8	87.5	66.5	80.5	78.2	6	16	8	11	0	0	0	
Nov	17	11	5	8	20	7	2	3	17	3.13	1.00	21	5.1	5.1	3.7	4.6	42.4	44.7	45.1	44.1	76.9	56.6	70.9	68.1	13	8	9	12	0	2	0	
Dec	12	10	1	14	14	7	4	23	8	3.89	1.38	29, 30	4.5	6.3	4.5	5.1	36.8	38.9	39.1	38.3	76.6	59.3	73.8	69.9	10	12	9	11	0	4	0	
Sums	122	110	97	106	169	89	43	134	224	55.62	....	......	58.5	63.0	40.0	53.9	603.9	626.0	634.7	621.6	966.7	702.3	895.7	855.0	144	132	88	128	8	28	44	
	Percentages.																								Percentages.							
Means	11.2	10.1	8.9	9.7	15.4	8.1	3.9	12.3	20.5	.....	....	......	4.9	5.2	3.3	4.5	50.3	52.2	52.9	51.8	80.6	58.5	74.6	71.2	39.8	36.0	24.2	35.1	0.8	7.8	12.1	

[1] One 11 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.59 a. m., 1.59 p. m., and 9.59 p. m., local time.
Correction for instrumental error of barometer used: From 5.59 a. m., January 1, to 9.59 p. m., December 31, inclusive, —.012 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, .330; February, .330; March, .330; April, .320; May, .310; June, .310; July, .310; August, .310; September, .310; October, .320; November, .330; December, .330.

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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

LOS ANGELES, CAL.

[Latitude, 34° 3′ N.; longitude, 118° 15′ W. Magnetic variation, 14° 45′ E. Elevation of barometer above sea-level, 371 feet. Elevation of exposed thermometer above ground, 58 feet. Elevation of rain-gauge above ground, 107 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	8 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	8 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 8 p. m.	8 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In.		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles.	Miles.			
Jan	29.761	29.759	29.751	29.757	30.072	8	29.411	2	.661	46.5	62.6	51.4	53.5	82.0	30	30.0	20	52.0	64.5	42.1	1,788	1,843	1,894	5,525	34	E.	2
Feb	29.712	29.729	29.712	29.718	30.194	17	29.379	1	.815	45.0	61.3	50.7	52.3	82.0	26	28.0	6	54.0	63.0	41.7	1,317	1,322	1,880	4,519	28	W., NW.	14 15
Mar	29.669	29.685	29.674	29.676	29.829	29	29.503	29	.326	51.4	63.9	54.7	56.7	84.0	1	42.6	26	41.4	66.8	49.4	801	1,000	2,051	3,852	32	W.	29
Apr	29.624	29.639	29.627	29.630	29.971	14	29.344	23	.627	48.3	68.4	55.2	57.3	89.0	16	39.0	14	50.0	70.4	46.6	1,186	1,312	2,638	5,136	42	W.	12
May	29.607	29.615	29.607	29.610	29.773	19	29.461	21	.312	53.8	73.1	59.3	62.1	100.0	21	39.5	16	60.5	75.7	51.7	936	1,310	2,625	4,871	24	SE., E.	6, 17
June	29.563	29.566	29.554	29.561	29.746	2	29.402	4	.344	59.7	81.8	64.9	68.8	100.0	27	52.0	13, 24	48.0	84.8	58.0	626	973	2,298	3,897	21	W.	16
July	29.596	29.604	29.581	29.594	29.733	23	29.467	3	.266	61.2	83.1	65.0	69.8	90.0	1, 24	52.5	28	37.5	85.0	60.1	700	845	2,517	4,062	16	SW., W.	6 23 29
Aug	29.591	29.602	29.591	29.505	29.695	16	29.502	2	.193	59.6	84.0	65.7	69.8	98.0	27	50.0	6	48.0	86.3	58.1	590	936	2,398	3,924	17	W.	31
Sept.....	29.539	29.552	29.536	29.542	29.650	30	29.363	22	.287	62.5	85.5	67.8	71.9	103.5	22	53.0	28	50.5	87.1	60.1	672	885	2,225	3,782	20	W.	6 20 22
Oct	29.597	29.609	29.604	29.603	29.805	8	29.253	2	.552	53.7	71.1	58.3	61.0	83.0	9	43.5	19	39.5	72.8	51.1	1,142	1,277	2,125	4,544	26	W.	26
Nov	29.671	29.673	29.672	29.672	29.835	12	29.523	19	.312	50.7	71.0	56.0	59.2	84.0	12 29	42.0	15, 18, 20, 24, 26	42.0	72.2	47.0	1,253	1,243	1,490	3,986	16	W.	2
Dec	29.702	29.709	29.708	29.706	29.978	31	29.408	4	.570	49.4	65.5	54.0	56.3	80.0	16	37.0	29	43.0	66.9	45.1	1,412	1,498	1,481	4,391	28	NW.	28
Sums..	355.632	355.742	355.617	355.664	......	...	......	...	.....	641.8	871.3	703.0	738.7	.....	.....	.....	....	....	895.5	611.0	12,423	14,444	25,622	52,489	....	....	....
																					Averages.						
Means	22.636	29.645	29.635	29.639	30.194	*17	29.253	†2	.....	58.5	72.6	58.6	61.6	103.5	‡22	28.0	*6	....	74.6	50.9	1,035.2	1,203.7	2,135.2	......	....	....	....

* February. † October. ‡ September.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	14	30	13	12	5	3	10	5	1	1.62	1.55	1, 2	2.8	3.3	1.8	2.6	32.3	34.8	35.8	34.3	61.0	38.5	59.0	52.8	21	6	4	3	0	1	0	
Feb	6	18	8	17	9	4	12	6	4	3.47	2.04	12, 13	3.8	4.5	3.3	3.9	34.6	36.8	39.6	37.0	69.1	44.6	68.0	60.6	13	9	6	4	0	2	0	
Mar	4	10	0	11	10	8	29	5	16	2.87	1.67	28, 29	5.4	7.3	5.3	6.0	47.8	50.3	51.1	49.7	88.3	64.2	87.9	80.1	6	14	11	7	0	0	0	
Apr	8	13	7	5	6	5	32	7	7	0.15	0.08	24	4.7	3.7	2.7	3.7	42.5	46.2	45.6	44.8	82.7	48.7	73.2	68.2	10	18	2	3	0	0	0	Last frost 14th.
May	2	10	4	2	6	13	45	3	8	2.02	1.53	6	5.1	4.1	2.9	4.0	49.4	52.2	51.3	51.0	86.3	50.9	77.8	71.7	12	15	4	6	0	0	3	
June	0	13	2	2	5	12	51	1	4	0.03	0.02	11	4.0	2.3	3.2	3.2	56.1	59.8	58.6	58.2	88.0	48.9	80.5	72.5	15	12	3	2	0	0	6	
July	1	1	0	1	3	15	62	0	10	(*)	(*)	13	6.3	0.5	1.6	2.8	57.8	60.5	59.6	59.3	88.7	46.8	82.9	72.8	11	19	1	0	0	0	0	
Aug	0	4	0	2	2	7	63	2	13	0	0	......	3.4	1.1	0.5	1.7	55.2	61.1	59.5	58.6	85.6	46.7	81.0	71.1	20	10	1	0	0	0	8	
Sept	1	13	0	1	6	16	39	3	11	0	0	......	2.1	1.2	1.3	1.5	55.5	58.4	58.2	57.4	81.5	43.2	75.9	66.9	22	8	0	0	0	0	10	
Oct	5	18	6	4	6	12	26	7	9	1.42	1.37	27	4.6	3.8	2.0	3.5	47.4	48.8	52.0	49.4	80.2	47.5	80.0	69.2	13	14	4	2	0	0	0	
Nov	5	28	4	6	5	10	17	8	7	0	0	......	3.1	2.0	0.9	2.0	37.8	40.7	47.3	41.9	66.0	37.0	75.4	59.5	18	11	1	0	0	0	0	First frost 24th.
Dec......	7	30	16	11	6	6	9	7	1	2.56	1.56	3, 4	2.4	2.5	2.0	2.3	39.9	42.2	44.1	42.1	72.7	46.3	72.3	63.8	22	7	2	6	0	0	0	
Sums ..	53	188	69	74	69	111	395	54	91	14.14	....	......	47.7	36.3	27.5	37.2	556.3	591.8	602.7	583.7	950.1	563.3	913.9	809.2	183	143	39	83	0	3	27	
	Percentages.																								Percentages.							
Means .	4.8	17.2	5.5	6.8	6.3	10.1	36.1	4.9	8.3	....	....	......	4.0	3.0	2.3	3.1	46.4	49.3	50.2	48.6	79.2	46.9	76.2	67.4	50.1	39.2	10.7	9.0	0	0.8	7.4	

* Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.15 a. m., 12.15 p. m., and 8.15 p. m., local time.
Correction for instrumental error of barometer used: From 4.15 a. m., January 1, to 8.15 p. m., December 31, inclusive, +0.011 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.400; February, 0.400; March, 0.400; April, 0.400; May, 0.400; June, 0.390; July, 0.390, August, 0.390; September, 0.390; October, 0.400; November, 0.400; December, 0.400.

T. S. COLLINS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

LOUISVILLE, KY.

[Latitude, 38° 15′ N.; longitude, 85° 45′ W. Magnetic variation, 4° E. Elevation of barometer above sea-level, 530 feet. Elevation of exposed thermometer above ground, 89 feet. Elevation of rain-gauge above ground, 102 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.580	29.532	29.574	29.562	30.125	22	28.954	10	1.171	30.7	37.0	31.8	33.2	56.0	27	7.5	22	48.5	30.9	25.5	2,073	2,259	2,250	6,582	31	W.	30
Feb	29.699	29.649	29.668	29.672	30.122	18	29.160	24	.962	35.7	44.4	40.2	40.1	77.5	16	17.0	1	60.5	50.1	31.0	2,120	2,436	2,218	6,774	28	S.	16
Mar	29.466	29.433	29.456	29.452	29.948	3	29.031	10	.917	37.3	46.6	40.9	41.6	[1]71.0	18	20.0	20	51.0	52.2	34.7	2,060	2,826	2,695	7,581	30	W.	10
Apr	29.394	29.363	29.370	29.376	29.756	3	28.896	23	.860	52.0	62.9	56.8	57.2	[1]88.5	14	32.5	1	56.0	69.3	48.9	1,689	2,394	2,206	6,289	30	SW.	19
May ...	29.417	29.374	29.393	29.395	29.737	6	28.990	20	.747	58.5	70.9	61.9	63.8	87.0	9	37.0	22	50.0	74.5	54.1	1,694	2,647	2,477	6,818	32	W.	4
June	29.406	29.370	29.382	29.386	29.713	1	29.034	10	.679	69.6	79.8	71.4	73.6	93.0	17	52.0	1	41.0	83.2	65.6	1,151	2,180	1,949	5,289	25	SW.	6
July	29.493	29.456	29.470	29.473	29.743	18	29.164	12	.579	72.1	84.4	74.3	76.9	95.0	4	61.0	29, 31	34.0	86.6	68.5	1,234	1,998	1,899	5,131	30	W.	24
Aug.....	29.506	29.458	29.480	29.481	29.672	6	29.281	28	.391	66.1	81.2	71.5	72.9	94.0	22	58.0	6, 31	36.0	82.8	64.6	1,099	1,818	1,743	4,660	20	SW., W.	20, 28
Sept	29.502	29.443	29.470	29.472	29.766	9	29.175	24	.591	59.9	77.2	66.6	67.9	92.0	2	44.0	9	48.0	79.0	58.4	1,341	2,210	1,912	5,463	26	SW.	27
Oct	29.518	29.502	29.527	29.516	29.873	16	28.935	29	.938	55.1	63.4	57.4	58.6	85.9	9	41.0	27	44.9	67.8	52.7	1,801	2,279	1,993	6,073	31	W.	11
Nov	29.613	29.564	29.583	29.587	30.124	16	29.162	9	.962	45.1	54.4	48.6	49.4	75.0	9	16.3	16	58.7	57.9	41.5	1,806	2,247	2,075	6,128	32	S.	21
Dec	29.558	29.524	29.551	29.544	29.867	9	29.031	16	.836	37.8	44.5	41.0	41.1	67.5	6	15.0	19	52.5	50.3	32.8	1,914	2,302	2,217	6,433	34	W.	27
Sums..	354.152	353.668	353.924	353.916	......	....	......	...	......	619.9	746.7	662.4	676.3	......	...	......	......	....	793.6	579.2	19,982	27,605	25,634	73,221	...	....	.....
																					Averages.						
Means.	29.513	29.472	29.494	29.493	30.125	*22	28.896	†23	......	51.7	62.2	55.2	56.4	95.0	‡4	7.5	*22	....	66.1	48.3	1,665.2	2,300.4	2,136.2	......	...	....	.....

[1] Three observations missed. * January. † April. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	10	14	12	7	7	17	23	3	0	3.52	1.29	27, 28	8.1	7.8	7.4	7.8	23.8	26.3	23.2	24.4	75.3	66.6	70.7	70.9	2	11	18	14	7	21	0	
Feb	12	12	6	3	18	10	16	7	0	8.72	2.68	6, 7	7.9	7.0	5.8	6.9	27.1	28.6	29.7	28.5	70.3	56.9	67.2	64.8	3	12	13	14	2	15	0	
Mar	12	15	6	1	9	16	18	16	0	3.22	1.48	29, 30	6.2	6.1	4.8	5.7	26.9	27.8	29.3	28.0	66.2	50.8	64.5	60.5	9	10	12	11	0	12	0	
Apr	10	13	8	5	23	12	11	8	0	6.63	3.64	5, 6	6.4	6.3	4.9	5.9	42.2	40.1	44.4	42.2	70.1	46.9	64.6	60.5	7	11	12	11	0	0	0	
May	9	4	5	3	31	13	12	15	1	2.59	1.14	20, 21	5.7	5.9	4.4	5.3	50.5	52.1	53.1	51.9	76.0	54.0	73.1	67.7	11	8	12	9	0	0	0	
June	6	8	5	7	26	16	17	4	1	1.98	.35	4	6.4	8.1	4.7	6.4	63.1	64.3	65.1	64.2	80.2	60.6	80.8	73.9	4	15	11	11	0	0	4	
July	15	8	3	0	21	31	7	7	1	4.74	[1]2.07	16, 17	4.2	6.3	3.3	4.9	65.2	63.7	66.3	65.1	79.1	50.8	76.6	68.8	9	19	3	9	0	0	10	
Aug	27	13	7	4	12	6	8	11	5	.86	.53	15, 16	4.2	5.9	2.0	4.0	59.5	57.8	61.5	59.6	79.5	46.9	71.3	65.9	12	14	5	6	0	0	4	
Sept	19	17	3	6	18	12	9	3	3	.32	.13	23	4.3	5.1	4.2	4.5	54.1	52.4	56.5	54.3	81.3	44.3	70.9	65.5	9	17	4	5	0	0	1	
Oct	24	15	10	8	12	10	6	7	1	8.05	3.34	28, 29	6.9	6.3	6.0	6.4	50.0	50.0	51.1	50.4	83.3	64.4	80.0	75.9	5	12	14	14	0	0	0	
Nov	5	6	3	12	22	15	15	8	4	6.05	2.01	21, 22	4.2	5.9	2.8	4.0	37.9	38.3	39.1	38.4	76.4	57.3	70.9	68.2	13	11	6	9	0	6	0	
Dec	9	9	2	9	22	14	20	6	2	4.86	2.07	23	6.6	6.5	5.5	6.2	31.2	33.7	32.8	32.6	77.3	67.3	73.4	72.7	7	10	14	13	1	14	0	
Sums	158	134	70	65	221	172	162	95	18	51.54	.....	.....	71.1	76.2	55.8	67.7	531.5	535.1	552.1	539.6	915.0	666.8	864.0	815.3	91	150	124	126	10	68	19	
	Percentages.																								Percentages.							
Means	14.4	12.2	6.4	5.9	20.2	15.7	14.8	8.7	1.6	.....	.....	.....	5.9	6.4	4.6	5.6	44.3	44.6	46.0	45.0	76.2	55.6	72.0	67.9	24.9	41.1	34.0	34.5	2.7	18.6	5.2	

[1] Gauge overflowed; excess unknown.

NOTE.—7 a. m., 3 p. m. and 11 p. m., Washington time, correspond with 6.25 a. m., 2.25 p. m., and 10.25 p. m., local time.
Correction for instrumental error of barometer used: From 6.25 a. m., January 7, to 10.25 p. m., December 31, inclusive, +0.020 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.590; February, 0.590; March, 0.590; April, 0.570; May, 0.550; June, 0.550; July, 0.550; August, 0.550; September, 0.550; October, 0.570; November, 0.590; December, 0.600.

L. M. DEY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

LYNCHBURG, VA.

[Latitude, 37° 25′ N.; longitude, 79° 91′ W. Magnetic variation, 0.°45′ W. Elevation of barometer above sea-level, 652 feet. Elevation of exposed thermometer above ground, 30 feet. Elevation of rain-gauge above ground, 50 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles*			
Jan	29.480	29.433	29.481	29.465	29.847	24	28.880	10	.967	31.4	39.9	33.4	34.9	58.0	7	8.2	13	49.8	41.3	28.6	611	1,012	839	2,462	18	NW.	11, 21
Feb	29.579	29.536	29.570	29.562	29.998	2	29.136	7	.862	39.7	50.3	43.4	44.5	73.3	17	28.5	27	44.8	52.4	36.7	868	1,230	1,033	3,131	20	NW., W.	21, 26
Mar	29.330	29.246	29.307	29.294	29.770	1	28.765	10	1.005	36.4	50.2	40.7	42.4	70.3	19	21.8	22	48.5	52.1	34.6	907	1,566	1,386	3,859	22	NW.	15
Apr	29.331	29.272	29.318	29.307	29.689	14	28.820	23	.869	49.6	62.2	54.1	55.3	77.8	11	30.8	2	47.0	65.0	45.9	573	1,384	1,041	2,998	18	NW.	16, 20
May	29.323	29.250	29.286	29.286	29.602	18	28.677	21	.925	62.0	76.2	64.7	67.6	90.2	4	46.3	24	43.9	77.6	56.0	696	1,477	1,323	3,496	23	NW.	15
June	29.337	29.286	29.323	29.315	29.704	2	29.097	13	.607	72.3	82.6	72.2	75.7	92.0	18, 19	55.0	2	37.0	84.6	65.5	370	1,119	794	2,283	18	SW.	10
July	29.360	29.327	29.360	29.356	29.560	21	29.064	24	.496	75.2	86.6	75.2	79.0	96.6	23	58.2	31	38.4	87.9	68.2	225	1,026	726	1,977	16	NW.	9
Aug	29.397	29.342	29.386	29.375	29.554	7, 31	29.087	2	.467	69.3	83.2	71.4	74.6	95.0	21	56.0	31	39.0	84.6	64.0	271	1,105	864	2,240	17	NW.	28
Sept	29.410	29.351	29.382	29.381	29.690	10	29.002	24	.688	61.7	74.4	64.9	67.0	86.6	8	46.0	10	40.6	75.4	58.6	523	1,044	793	2,360	13	NE.	10
Oct	29.473	29.418	29.469	29.453	29.883	16	28.899	2	.984	54.9	64.7	57.2	58.9	83.0	14	41.8	27	41.2	66.3	52.1	485	970	711	2,166	19	NW.	31
Nov	29.519	29.460	29.495	29.491	29.911	16, 17	29.154	14	.757	43.6	56.4	47.2	49.1	75.8	10	19.0	17	56.8	58.4	39.7	731	1,073	752	2,556	24	NW.	12
Dec	29.443	29.399	29.452	29.431	29.822	23	28.918	27	.904	36.5	48.2	39.5	41.4	66.0	5	22.5	23	43.5	49.3	32.1	545	1,064	756	2,365	27	NW.	2
Sums	353.002	352.320	352.829	352.716	.....	.....	....	...	.....	632.6	774.9	663.9	690.4	...	.....	.....	...	....	794.9	582.0	6,805	14,070	11,018	31,893	....	....	.....
																					Averages.						
Means	29.417	29.360	29.402	29.393	29.998	*2	28.677	†21	......	52.7	64:6	55.3	57.5	96.6	‡23	8.2	§13	..	66.2	48.5	567.1	1,172.5	918.2	......	.....	....	.....

*February. †May. ‡July. §January.

Month.	Winds at 7 a.m., 3 and 11 p.m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a.m.	3 p.m.	11 p.m.	Mean.	7 a.m.	3 p.m.	11 p.m.	Mean.	7 a.m.	3 p.m.	11 p.m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	4	19	7	4	9	16	12	7	15	4.58	1.34	20, 21	6.4	7.5	5.1	6.3	24.9	24.7	25.9	25.2	77.0	57.4	74.5	69.6	4	14	13	14	3	19	0	
Feb	1	12	10	8	10	18	13	12	5	2.94	1.43	4, 5	5.8	6.5	4.2	5.5	29.0	30.9	32.5	30.8	67.0	51.2	67.1	61.8	7	11	10	12	0	6	0	
Mar	1	13	6	5	12	16	13	18	9	3.11	.95	31	4.7	5.3	3.4	4.5	23.2	22.0	26.2	23.8	59.3	35.7	57.4	50.8	14	9	8	10	0	11	0	
Apr	4	12	13	6	10	17	8	9	11	4.84	1.93	16	5.7	5.6	4.8	5.4	41.6	40.0	43.3	41.6	74.9	48.8	68.2	64.0	7	14	9	13	0	1	0	April 4, last frost of season.
May	0	5	6	5	19	16	12	14	15	1.19	.57	5	2.9	3.7	3.6	3.4	48.1	44.7	50.3	47.7	61.5	34.0	60.9	52.1	17	9	5	6	0	0	1	
June	8	12	3	4	16	20	11	5	16	4.04	1.67	25, 26	3.9	5.0	4.2	4.4	61.4	59.6	63.5	61.5	69.3	47.6	74.7	63.9	9	16	5	11	0	0	3	
July	6	6	2	1	7	19	25	8	19	0.19	0.17	8, 9	2.4	4.4	1.6	2.8	63.6	60.6	64.7	63.0	67.5	42.8	70.4	60.2	20	10	1	2	0	0	13	
Aug	6	19	4	7	3	9	8	9	28	1.87	0.80	16	4.0	4.3	3.0	3.8	60.1	54.5	60.7	58.4	73.0	39.7	70.0	60.9	13	15	3	7	0	0	6	
Sept	6	26	3	1	5	18	5	5	21	5.57	1.97	11, 12	6.1	5.4	4.6	5.4	55.1	53.7	57.2	55.3	79.6	52.0	77.3	69.6	9	12	9	9	0	0	0	
Oct	6	31	8	0	7	5	7	5	24	4.47	0.99	1, 2	6.9	7.2	6.5	6.9	48.4	50.0	50.1	49.5	79.5	61.5	78.3	73.1	5	10	16	11	0	0	0	
Nov	3	7	2	1	17	20	8	12	30	1.14	0.37	25, 26	4.6	4.9	3.8	4.4	32.2	34.0	35.5	33.9	67.6	48.3	66.2	60.7	13	9	8	10	0	8	0	November 3, first frost of season.
Dec	2	10	5	2	12	28	10	11	13	5.91	4.50	23	5.4	5.4	4.3	5.0	27.9	29.0	28.8	28.6	71.2	50.8	66.9	63.0	9	15	7	10	1	14	0	
Sums ..	42	172	69	40	127	202	132	115	196	39.85	....	......	58.8	65.2	49.1	57.8	515.5	503.7	538.7	519.3	847.4	569.8	831.9	749.7	127	144	94	115	4	59	23	
	Percentages.																								Percentages.							
Means .	3.8	15.7	6.3	3.7	11.6	18.4	12.1	10.5	17.9	.....	....	......	4.9	5.4	4.1	4.8	43.0	42.0	44.9	43.3	70.6	47.5	69.3	62.5	34.8	39.5	23.8	31.5	1.1	16.2	6.3	

NOTE.—7 a.m., 3 p.m., and 11 p.m., Washington time, correspond with 6.52 a.m., 2.52 p.m., and 10.52 p.m., local time.

Correction for instrumental error of barometer used: From 6.52 a.m., January 1, to 10.52 p.m., December 31, inclusive, +.012 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.720; February, 0.720; March, 0.720; April, 0.710; May, 0.680; June, 0.670; July, 0.670; August, 0.670; September, 0.680; October, 0.690; November, 0.720; December, 0.730.

JNO. HEALY.
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

MACKINAW CITY, MICH.

[Latitude, 45° 47′ N.; longitude, 84° 39′ W. Magnetic variation, ½° W. Elevation of barometer above sea-level, 605 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 34 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29. 376	29. 348	29. 368	29. 364	29. 932	4	28. 579	13	1. 353	13. 5	19. 1	15. 4	16. 0	37. 0	30	—9. 0	22, 23	46. 0	22. 2	8. 2	2, 771	3, 273	3, 117	0, 161	37	SW.	13
Feb	29. 483	29. 471	29. 467	29. 474	29. 961	2	28. 825	16	1. 136	10. 6	19. 1	15. 4	15. 0	43. 0	16	—11. 0	10	54. 0	23. 1	5. 7	2, 451	3, 042	2, 599	8, 092	35	SW.	16
Mar	29. 348	20. 295	29. 339	29. 327	29. 827	7	28. 464	17	1. 363	11. 6	24. 5	16. 4	17. 5	50. 0	1	—9. 0	19	59. 0	28. 3	5. 9	1, 823	2, 745	2, 588	7, 156	40	SW.	17
Apr	29. 324	29. 305	29. 318	29. 316	29. 631	1	28. 621	11	1. 010	32. 9	40. 4	34. 4	35. 9	61. 0	15	3. 0	1	58. 0	42. 9	27. 1	1, 736	2, 715	2, 493	6, 944	40	SE.	13
May	29. 291	29. 279	29. 289	29. 286	29. 573	16	28. 826	19	. 747	42. 1	50. 0	42. 1	44. 7	79. 5	19	28. 0	1	51. 5	52. 8	36. 4	2, 110	3, 171	2, 675	7, 956	52	E.	10
June	29. 240	29. 225	29. 227	29. 231	29. 632	1	28. 799	18	. 833	57. 2	63. 9	55. 5	58. 9	76. 3	28	35. 7	1	40. 6	68. 2	49. 4	1, 797	2, 541	1, 914	6, 252	28	W., SW.	14, 16
July	29. 291	29. 284	29. 277	29. 284	29. 601	19	28. 860	12	. 741	60. 2	67. 0	60. 4	62. 5	80. 2	1	46. 8	11	33. 4	70. 4	54. 4	1, 625	2, 872	2, 155	6, 152	32	S.	1
Aug	29. 392	29. 370	29. 382	29. 381	29. 677	14	28. 889	22	. 788	59. 3	67. 9	58. 9	62. 0	83. 2	21	42. 8	27	40. 4	70. 3	53. 9	1, 691	2, 493	2, 142	6, 326	38	SW.	30
Sept	29. 428	29. 406	29. 410	29. 415	29. 864	9	28. 785	24	1. 079	51. 8	58. 6	52. 2	54. 2	74. 2	1	34. 0	29	40. 2	60. 9	46. 9	1, 845	2, 413	2, 298	6, 556	36	E.	7
Oct	29. 466	29. 449	29. 460	29. 458	30. 004	15	28. 678	29	1. 326	42. 6	48. 0	43. 4	44. 7	69. 1	9	24. 0	20	45. 1	50. 0	38. 3	2, 191	2, 576	2, 518	7, 285	28	NW., W.	3, 31
Nov	29. 306	29. 294	29. 306	29. 302	29. 883	28	28. 770	26	1. 113	34. 0	37. 8	35. 0	35. 6	59. 8	5	8. 4	16	51. 4	42. 2	29. 0	2, 858	3, 046	2, 611	8, 515	40	NW.	12
Dec	29. 324	29. 328	29. 347	29. 333	29. 828	22	28. 789	17	1. 039	23. 5	26. 2	24. 9	24. 9	51. 5	7	3. 3	15	48. 2	30. 7	18. 8	2, 914	3, 228	2, 999	9, 171	41	E.	23
Sums ..	352. 269	352. 054	352. 190	352. 171	......	...	......	...	.....	439. 3	522. 5	454. 0	471. 9	....	...	......	.....	....	562. 0	374. 0	25, 842	33, 615	30, 109	89, 566	...	....	.....
																						Averages.					
Means.	29. 356	29. 338	29. 349	29. 348	30. 004	*15	28. 464	†17	.....	36. 6	43. 5	37. 8	39. 3	83. 2	‡21	—11. 0	§10	....	46. 8	31. 2	2, 153. 5	2, 801. 2	2, 509. 1	......	...	....	.....

* October. † March. ‡ August. § February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	8 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	2	3	15	5	14	7	21	24	2	5.17	.60	17	6.8	7.9	5.7	6.8	6.5	9.7	8.2	8.1	73.2	67.3	72.6	71.0	3	16	12	24	28	31	0	
Feb	4	3	12	3	1	16	26	16	3	2.99	.65	24, 25	5.7	5.8	5.3	5.6	3.3	8.2	8.0	6.5	72.0	62.4	72.1	68.8	9	9	10	15	24	28	0	
Mar	7	1	6	4	4	13	24	31	3	1.51	.58	5, 6	5.7	6.0	3.1	4.9	2.7	12.5	7.3	7.5	66.9	59.8	67.0	64.6	11	11	9	10	21	31	0	
Apr	4	7	24	8	1	10	16	19	1	.69	.29	10, 11	5.6	6.2	5.2	5.7	25.8	25.4	26.1	25.8	74.8	56.8	71.4	67.7	7	14	9	9	2	23	0	
May	9	5	18	9	3	4	25	17	3	4.49	1.20	19	6.5	7.0	5.5	6.3	32.6	34.4	34.5	33.8	69.6	60.1	75.4	68.4	5	13	13	17	0	3	0	
June	13	4	12	6	8	8	21	17	1	3.58	.85	9	6.8	6.3	6.4	6.5	49.2	50.7	49.0	49.6	76.3	64.4	80.8	73.8	4	15	11	14	0	0	0	
July	8	6	7	5	11	12	23	17	4	4.35	1.46	11, 12	6.3	6.4	8.8	5.5	53.6	53.6	53.5	53.6	79.4	64.9	79.8	74.7	5	18	8	15	0	0	0	
Aug	8	2	13	8	8	14	19	16	5	1.95	.96	12	2.6	3.9	8.4	3.3	52.4	55.3	52.1	53.3	78.2	65.5	79.1	74.3	16	10	5	8	0	0	0	
Sept	11	3	21	5	8	18	7	15	2	2.03	.92	7	5.1	5.6	4.9	5.2	47.2	46.3	45.9	46.5	84.3	65.2	79.6	76.4	8	15	7	13	0	0	0	
Oct	11	8	16	12	12	12	8	14	0	2.40	1.11	8	7.5	6.7	5.6	6.0	36.1	36.8	34.8	35.0	78.3	66.2	72.7	72.4	3	13	15	15	0	2	0	
Nov	8	1	4	6	22	15	13	21	0	(*)	(*)	......	8.4	7.5	7.1	7.7	29.1	30.1	29.4	29.5	82.2	74.4	80.6	79.1	1	11	18	21	6	15	0	
Dec	3	5	9	8	16	9	15	28	0	(*)	(*)	......	9.2	8.9	8.5	8.9	19.9	20.8	20.1	20.3	86.1	80.3	81.6	82.7	0	5	26	20	16	27	0	
Sums ..	88	48	157	79	108	138	218	235	24	......	......	......	76.2	78.2	64.5	73.0	358.4	383.8	368.9	370.4	921.3	787.3	912.7	873.9	72	150	143	181	97	160	0	
	Percentages.																								Percentages.							
Means.	8.0	4.4	14.3	7.2	9.0	12.6	19.9	21.5	2.2	......	......	......	6.4	6.5	5.4	6.1	29.9	32.0	30.7	30.9	76.8	65.6	76.1	72.8	19.7	41.1	39.2	49.6	26.6	43.8	0.0	

[*] Measurements incorrect.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.30 a. m., 2.30 p. m., and 10.30 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.30 a. m., January 1, to 10.30 a. m., November 4, inclusive, +.010 inch; from 2.30 p. m., November 4, to 10.30 p. m., December 31, inclusive, +.008 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.700; February, 0.700; March, 0.700; April, 0.680; May, 0.650; June, 0.640; July, 0.640; August, 0.640; September, 0.650; October, 0.670; November, 0.690; December, 0.700.

D. B. NOTSON,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

MACON, FORT. N. C.

[Latitude, 34° 42′ N.; longitude, 76° 40′ W. Magnetic variation, 2° 30′ W. Elevation of barometer above sea-level, 11 feet. Elevation of exposed thermometer above ground, 9 feet. Elevation of rain-gauge above ground, 5 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In.		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles.	Miles.			
Jan	30.194	30.144	30.179	30.172	30.620	23	29.425	9	1.195	41.3	47.2	43.1	43.9	61.0	28	22.0	12	39.0	49.9	58.1	2,351	2,562	2,627	7,540	36	NE.	9
Feb	30.293	30.257	30.288	30.279	30.604	2	29.964	25	.640	47.0	53.9	48.4	49.8	67.0	16	36.0	19, 27	31.0	56.8	44.0	2,677	3,320	2,813	8,810	38	N.	12
Mar	30.039	29.976	30.002	30.006	30.424	5	29.455	26	.969	44.2	52.5	47.4	48.0	65.5	19	30.3	23	35.2	55.8	40.3	3,243	3,815	3,868	10,926	44	NE.	26
Apr	30.021	29.977	30.024	30.007	30.401	4	29.473	23	.928	55.1	63.0	55.0	57.7	73.0	12	39.0	1	34.0	65.2	50.8	2,809	3,319	3,248	9,376	42	NW.	24
May	30.008	29.960	29.993	29.987	30.252	18	29.443	21	.809	63.7	72.5	64.9	67.0	80.0	14	50.5	1	29.5	74.0	59.9	3,161	3,493	3,615	10,269	46	NW.	2
June	30.028	30.002	30.018	30.016	30.284	4	29.768	19	.516	74.0	79.3	74.2	75.8	86.3	21	64.5	1	21.8	81.0	70.9	2,378	3,020	3,250	8,648	40	SE.	2
July	30.060	30.028	30.053	30.047	30.319	21	29.773	13	.546	77.9	84.0	77.5	79.8	89.5	16	70.5	27	19.0	85.2	74.1	2,349	2,556	2,960	7,865	25	SW.	9
Aug	30.025	29.907	30.026	30.016	30.179	14	29.800	28	.379	74.8	81.8	75.5	77.4	91.0	22	63.0	31	28.0	83.4	71.8	2,386	3,082	2,911	8,379	28	NE., N.	8, 26, 27
Sept	30.042	30.007	30.024	30.024	30.254	27	29.688	11	.566	71.0	75.7	71.7	72.8	85.0	4	62.0	9	23.0	77.1	68.0	3,376	3,966	4,035	11,377	60	NE.	10
Oct	30.117	30.077	30.104	30.099	30.444	17	20.757	2	.687	63.3	68.4	63.8	65.2	80.0	1, 2	49.5	25	30.5	69.8	60.1	3,604	4,233	4,012	11,849	40	SW.	2
Nov	30.223	30.172	30.201	30.199	30.617	16	29.914	14	.703	52.4	59.8	54.6	55.6	71.0	10, 11	30.3	17	40.7	62.2	48.8	3,294	3,503	3,328	10,125	52	N.	27
Dec	30.183	30.135	30.168	30.162	30.462	7	29.712	27	.750	46.7	53.7	49.5	50.0	64.5	5	27.0	16	37.5	55.9	43.0	2,719	3,032	2,864	8,615	42	NW.	15
Sums	361.233	360.732	361.080	361.014	......	...	......	...	.....	711.4	791.8	725.6	743.0	....	...	....	.....	....	810.3	669.8	34,347	39,901	39,531	113,779	..	....	....
																					Averages.						
Means	30.103	30.061	30.090	30.085	30.620	*23	29.425	*9	.....	59.3	66.0	60.5	61.9	91.0	†22	22.0	*12	....	68.0	55.8	2,862.2	3,325.1	3,294.2	......	..	....	....

* January.

† August.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	17	21	3	8	3	15	6	17	3	8.85	2.59	9, 10	7.1	6.3	5.7	6.4	38.0	40.8	39.5	39.4	88.6	80.4	88.3	85.8	5	13	13	18	0	6	0	
Feb	15	23	2	4	8	25	2	10	0	3.14	.92	24, 25	6.2	6.2	4.0	5.5	43.1	44.1	44.8	44.0	87.7	73.4	87.8	83.0	7	11	10	11	0	0	0	
Mar	12	16	5	1	4	34	5	15	1	5.56	2.88	26	4.8	5.6	4.9	5.1	39.4	40.6	41.2	40.4	83.5	66.9	79.9	76.8	10	12	9	14	0	1	0	
Apr	19	18	5	6	9	21	5	7	0	4.42	1.75	23	6.3	7.1	5.7	6.4	51.9	54.6	52.1	52.9	89.6	75.4	90.1	85.0	8	5	17	12	0	0	0	
May	12	10	5	2	8	35	4	17	0	6.67	2.95	27	5.5	4.7	3.5	4.6	58.2	61.0	59.6	59.6	83.5	68.3	83.7	78.5	12	12	7	10	0	0	0	
June	5	11	5	3	17	40	7	2	0	10.89	5.26	2	5.7	6.0	4.5	5.4	70.4	71.7	70.7	70.9	89.2	78.2	88.9	85.4	6	17	7	19	0	0	0	
July	4	8	10	11	12	29	15	4	0	6.71	2.39	18	4.9	5.1	3.8	4.6	72.3	73.9	71.9	72.7	83.2	72.4	83.6	79.7	10	15	6	16	0	0	0	
Aug	24	19	3	5	4	19	8	8	8	3.30	.80	16, 17	5.5	5.6	4.6	5.2	70.3	71.6	70.9	70.9	86.1	72.1	86.0	81.4	8	11	12	12	0	0	1	
Sept	11	25	6	8	9	20	6	4	1	12.69	5.80	10, 11	6.2	6.2	3.5	5.3	67.4	68.0	68.0	67.8	88.8	78.4	88.4	85.2	9	11	10	12	0	0	0	
Oct	22	34	3	9	8	7	2	8	0	2.83	.85	12, 13	6.9	5.9	4.4	5.7	60.2	61.0	60.4	60.5	90.1	78.5	89.1	85.9	5	17	9	18	0	0	0	
Nov	20	14	0	4	10	15	6	20	1	.51	.28	25, 26	4.8	4.6	3.5	4.3	46.2	47.0	48.7	47.3	80.7	65.5	81.3	75.8	12	13	5	9	0	1	0	
Dec	19	15	5	6	7	19	3	16	8	1.88	.61	14	5.1	4.7	3.2	4.3	41.2	43.3	43.8	42.8	82.0	70.6	81.9	78.2	10	15	6	12	0	1	0	
Sums	180	214	52	67	94	279	69	128	12	67.45	....	......	69.0	68.0	51.3	62.8	658.6	677.6	671.6	669.2	1,033.0	880.1	1,029.0	980.7	102	152	111	158	0	9	1	
	Percentages.																								Percentages.							
Means	16.4	19.5	4.7	6.1	8.6	25.5	6.3	11.7	1.1	.....	....	......	5.8	5.7	4.3	5.3	54.9	56.5	56.0	55.8	86.1	73.3	85.8	81.7	27.9	41.6	30.4	43.3	0	2.5	0.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.01 a. m., 3.01 p. m., and 11.01 p. m., local time.

Correction for instrumental error of barometer used: From 7.01 a. m., January 1, to 11.01 p. m., December 31, inclusive, +0.015.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.010; February, 0.010; March, 0.010; April, 0.010; May, 0.010; June, 0.010; July, 0.010; August, 0.010; September, 0.010; October, 0.010; November, 0.010; December, 0.010.

WILLIAM DALY,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

MAGINNIS, FORT, MONT.

[Latitude, 47° 12′ N.; longitude, 109° 10′ W. Magnetic variation, 20° E. Elevation of barometer above sea-level, 4,340 (B) feet. Elevation of exposed thermometer above ground, 7 feet. Elevation of rain-gauge above ground, 22 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 a. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	25.450	25.455	25.451	25.452	25.825	7	24.977	11	.848	11.1	15.6	14.3	13.7	45.0	11	—29.0	18, 19	74.0	19.3	5.7	4,177	4,805	3,601	12,083	60	NW.	12
Feb	25.577	25.569	25.572	25.573	25.931	25	25.052	14	.879	14.4	22.4	16.5	17.8	57.0	27	—35.0	3	92.0	24.8	9.4	2,676	3,039	2,792	8,507	48	W., NW.	7, 10
Mar	25.575	25.537	25.568	25.560	26.011	2	25.117	17	.894	26.6	38.9	28.2	31.2	58.0	17	— 1.0	27	59.0	40.2	22.3	2,360	2,571	2,611	7,542	52	NW.	6
Apr	25.446	25.441	25.446	25.444	26.001	24	24.981	20	1.020	32.8	46.0	36.7	38.5	64.0	28	14.0	1	50.0	47.6	30.0	2,683	3,047	2,698	8,428	56	NW.	21
May	25.550	25.545	25.548	25.548	25.872	19	25.175	17	.697	40.7	51.4	41.8	44.6	68.0	20	19.0	1	49.0	52.2	37.5	2,297	2,922	2,644	7,863	48	W.	31
June	25.577	25.574	25.573	25.575	25.785	8	25.291	10	.494	53.7	66.6	54.8	58.4	92.0	25	33.0	1	59.0	68.7	51.0	2,637	3,007	2,526	8,170	48	NW.	5
July	25.659	25.644	25.646	25.650	25.844	7	25.299	13	.545	57.4	71.5	58.6	62.5	87.0	1	43.0	16	44.0	73.5	54.4	2,306	2,682	2,522	7,510	44	NW.	13
Aug	25.659	25.644	25.655	25.653	25.875	27	25.370	20	.505	58.7	74.4	58.8	62.3	90.0	16	30.0	22	60.0	77.2	49.8	2,168	2,826	2,273	7,267	44	NW.	16
Sept	25.703	25.680	25.686	25.690	26.229	20	25.416	12	.813	45.3	64.9	49.1	53.1	84.0	5	30.0	20, 21	54.0	69.0	41.2	1,959	1,793	1,841	5,593	38	W.	19
Oct	25.511	25.506	25.519	25.512	25.874	10	25.007	27	.867	32.1	42.2	33.1	35.8	62.0	5	14.0	11	48.0	47.5	27.4	2,076	2,515	2,064	6,655	40	NW.	18
Nov	25.447	25.435	25.477	25.453	25.915	13	24.999	20	.916	25.2	35.0	27.4	29.2	60.0	1	—16.0	25	76.0	39.1	17.0	3,242	3,235	3,467	9,944	48	N., SW.	12, 28, 29
Dec	25.524	25.497	25.508	25.510	26.047	14	24.941	25	1.106	23.6	32.2	26.8	27.2	58.6	11	—14.0	30	72.0	35.7	18.9	3,612	3,484	2,621	9,717	52	W.	8
Sums	306.678	306.527	306.649	306.620	......	....	....	....	......	416.6	561.1	445.1	474.3	....	....	....	......	....	594.8	364.6	32,193	35,426	31,660	99,279	...	....	....
																					Averages.						
Means	25.556	25.544	25.554	25.551	26.229	*20	24.941	†25	......	34.7	46.8	37.1	39.5	92.0	‡25	—35.0	§3	....	49.6	30.4	2,682.8	2,952.2	2,638.3	......	...	....	....

*September. †December. ‡June. §February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	11 p. m.	3 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	13	4	0	1	0	0	53	22	0	1.30	.40	5, 6	7.6	7.9	6.3	7.3	— 2.1	1.6	1.2	0.2	55.2	54.6	55.6	55.1	2	14	15	14	20	29	0	
Feb	12	1	0	6	0	14	32	19	0	.59	.52	14, 15	4.6	6.0	4.3	5.0	— 2.2	4.3	— 1.0	0.4	46.9	45.9	44.4	45.7	8	15	5	5	16	23	0	
Mar	0	18	5	4	0	16	31	19	0	1.46	.42	26, 27	5.8	6.0	6.4	6.1	8.2	17.1	10.0	11.8	45.8	43.0	46.6	45.1	9	7	15	15	8	22	0	
Apr	6	10	1	7	1	23	30	12	0	.39	.23	20, 21	4.9	7.1	5.0	5.7	17.4	28.1	20.6	22.0	52.4	50.5	52.3	51.7	7	12	11	5	0	15	0	
May	1	16	8	22	2	6	26	12	0	1.73	.30	2	6.5	7.5	6.7	6.9	25.9	34.2	27.0	29.0	57.4	53.8	56.8	56.0	5	11	15	13	2	6	0	
June	0	18	2	15	4	9	21	21	0	.94	.30	10	4.2	5.3	4.9	4.8	32.5	40.5	35.7	36.2	46.1	42.4	51.0	46.5	11	11	8	7	0	0	1	
July	0	12	1	6	4	27	26	17	0	.28	.13	5	2.6	4.7	3.5	3.6	33.3	39.8	33.8	35.6	41.5	33.4	40.8	38.6	13	15	3	5	0	0	0	
Aug	4	10	2	21	0	22	19	15	0	.37	.16	21	3.0	3.3	3.6	3.3	31.9	38.0	37.3	35.7	45.2	30.3	46.4	40.6	14	13	4	6	0	1	0	
Sept	11	5	8	15	13	11	14	13	0	.66	.36	12, 13	1.5	1.0	1.6	1.4	31.1	35.1	30.6	32.3	58.6	36.5	51.9	49.0	25	4	1	4	0	8	0	
Oct	5	3	12	14	3	3	19	34	0	4.06	.94	18, 19	4.0	4.8	4.2	4.3	22.6	27.6	23.9	24.7	69.0	61.2	69.9	66.7	14	8	9	12	1	24	0	
Nov	10	15	4	5	0	19	20	17	0	1.12	.18	20	6.5	6.3	4.8	5.9	10.9	17.9	11.5	13.4	55.2	51.3	52.0	52.8	6	13	11	12	8	26	0	
Dec	2	9	3	10	0	9	28	32	0	.39	.14	17	6.0	5.2	4.2	5.1	7.8	13.8	9.6	10.4	52.0	47.1	50.9	50.0	10	11	10	9	11	26	0	
Sums	64	121	46	126	27	159	319	233	0	13.29	......	......	57.2	65.1	55.5	59.4	216.8	298.0	240.2	251.7	625.3	550.0	618.6	597.8	124	134	107	107	66	175	1	
	Percentages.																								Percentages.							
Means	5.8	11.1	4.2	11.5	2.5	14.5	29.1	21.3	.0	......	......	......	4.8	5.4	4.6	4.9	18.1	24.8	20.0	21.0	52.1	45.8	51.6	49.8	34.0	36.7	29.3	29.3	18.1	47.9	0.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.52 a. m., 12.52 p. m., and 8.52 p. m.

Correction for instrumental error of barometer used: From 4.52 a. m., January 1, to 8.52 p. m., December 31, inclusive, +.009 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 4.770; February, 4.750; March, 4.600; April, 4.500; May, 4.410; June, 4.330; July, 4.310; August, 4.310; September, 4.400; October, 4.540; November, 4.600; December, 4.630.

FRANK BURKE,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

MARQUETTE, MICH.

[Latitude, 46° 34′ N.; longitude, 87° 24′ W. Magnetic variation, 4° 15′ W. Elevation of barometer above sea-level, 673 feet. Elevation of exposed thermometer above ground, 36 feet. Elevation of rain-gauge above ground, 57 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly means.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.273	29.252	29.279	29.268	29.821	4	28.521	30	1.300	8.7	16.3	11.8	12.3	32.0	30	—20.0	22	52.0	19.6	2.5	2,512	2,930	2,607	8,049	40	NW.	31
Feb	29.376	29.372	29.386	29.378	29.908	2	28.735	16	1.173	10.0	20.9	14.0	15.0	38.0	21	—17.0	9	55.0	23.0	5.0	2,258	2,307	2,201	6,766	30	W.	6
Mar	29.251	29.234	29.263	29.249	29.763	7	28.308	17	1.455	13.8	23.5	16.3	17.9	48.0	1	—13.0	19	61.0	28.6	6.9	2,332	2,596	2,217	7,145	37	NW.	14
Apr	29.225	29.214	29.223	29.221	29.560	1	28.585	15	.975	33.2	40.5	35.9	36.5	63.0	14	8.0	1	55.0	43.6	27.9	1,805	2,160	1,699	5,664	30	S.	15
May	29.225	29.214	29.204	29.214	29.517	2	28.640	19	.877	43.1	46.6	42.3	44.0	72.0	17 19	28.0	13 16	44.0	52.0	35.3	1,873	2,700	1,959	6,532	33	S.	18
June	29.171	29.150	29.137	29.153	29.430	1	28.745	18	.685	56.1	60.4	55.5	57.3	87.0	23	40.0	3 9 10 11	47.0	66.7	47.9	2,009	2,510	2,089	6,608	36	NW.	18
July.....	29.208	29.199	29.195	20.201	29.545	19	28.802	16	.743	60.3	66.0	59.7	62.0	94.0	1	40.3	13	53.7	71.1	53.1	1,719	2,192	1,407	5,318	28	NW., S.	17, 20
Aug.....	29.307	29.301	29.305	29.304	29.642	26	28.710	22	.932	58.9	67.7	59.3	62.0	88.0	21	34.7	12	53.3	70.9	51.6	1,919	2,342	1,709	5,970	38	W.	22
Sept.....	20.358	29.334	29.342	29.345	29.756	9	28.899	24	.857	49.9	60.2	51.5	53.9	82.0	14	28.0	29	54.0	63.6	45.5	1,791	2,154	1,638	5,583	24	NW., SW.	24, 26
Oct......	29.379	29.375	29.379	29.378	29.988	20	28.643	29	1.295	40.4	46.7	41.8	43.0	66.0	9, 18	24.0	21	42.0	50.2	36.4	1,798	2,331	1,892	6,021	30	S.	17
Nov.....	29.226	29.209	29.218	29.216	29.878	28	28.736	25	1.142	30.1	35.6	31.4	32.4	56.8	4	1.0	16	55.8	41.4	24.2	2,449	2,796	2,408	7,653	40	S.	25
Dec	29.269	29.276	29.275	29.273	29.796	22	28.747	17	1.049	18.7	23.9	20.7	21.1	53.0	7	—12.6	19	65.0	28.0	12.7	2,879	2,955	2,363	8,197	40	NW.	2
Sums..	351.269	351.130	351.206	351.200	......	....	......	....	......	423.2	508.3	440.2	457.4	....	....	......	......	....	558.7	347.0	25,344	29,973	24,189	79,596	...	....	.....
																					Averages.						
Means.	29.272	29.261	29.267	29.267	29.938	*20	28.308	†17	......	35.3	42.4	36.7	38.1	94.0	‡1	—20.0	§22	....	46.6	28.9	2,112.0	2,497.8	2,015.8	......	...	....	.....

* October. † March. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.		Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	3	2	1	5	16	11	39	16	0	2.36	.80	30, 31	6.2	6.3	6.2	6.2	0.5	5.8	3.8	3.4	69.5	63.2	70.3	67.7	6	13	12	17	30	31	0	
Feb	8	4	7	2	10	9	24	20	0	1.43	.45	16	4.4	6.5	4.1	5.0	0.1	6.5	4.4	3.7	64.6	53.9	66.1	61.5	7	14	7	11	21	28	0	
Mar	27	11	1	6	3	10	12	22	1	.62	.20	9, 10	4.9	5.2	2.6	4.2	4.6	7.7	6.4	6.2	66.8	51.5	65.3	61.2	9	17	5	11	22	31	0	
Apr	10	13	10	10	12	6	10	19	0	2.02	.99	14, 15	5.9	6.0	3.0	5.0	25.6	24.0	25.8	25.3	73.3	54.2	66.8	64.8	7	18	5	7	1	22	0	
May	14	13	6	9	10	4	10	26	1	2.65	.82	19, 20	5.7	6.4	4.8	5.6	31.4	29.9	30.6	30.6	64.9	55.3	64.3	61.5	6	16	9	13	0	8	0	
June	16	1	4	12	9	12	10	23	3	4.56	1.09	2, 3	4.7	6.4	5.3	5.5	45.9	44.9	47.5	46.1	71.3	61.2	76.3	69.6	8	12	10	18	0	0	0	
July	6	3	8	11	10	8	22	23	2	4.01	1.34	6, 7	6.9	6.5	4.2	5.9	51.3	50.3	51.0	50.9	73.4	59.5	74.3	69.1	4	20	7	15	0	0	1	
Aug	10	3	8	8	6	17	19	19	3	2.11	1.28	11, 12	3.2	4.4	2.5	3.4	49.6	50.4	49.7	49.9	73.4	56.4	71.5	67.1	14	14	3	12	0	0	0	
Sept	7	8	5	5	6	19	15	20	5	3.24	.87	24, 25	6.9	5.7	3.8	5.5	43.1	42.4	42.5	42.7	78.2	55.4	72.3	68.6	7	13	10	12	0	1	0	
Oct	13	8	6	9	16	10	13	12	6	2.58	1.08	7, 8	7.3	6.8	6.8	7.0	33.3	32.7	34.0	33.3	75.9	60.5	74.3	70.2	2	16	13	15	0	7	0	
Nov	6	2	0	5	20	19	18	19	1	2.88	.68	5	8.1	7.4	5.8	7.1	23.0	22.7	21.6	22.4	74.6	60.8	69.0	68.1	2	15	13	15	6	20	0	
Dec	8	4	1	5	12	12	24	24	3	2.01	.60	26	7.3	7.9	6.9	7.4	11.8	13.4	12.8	12.7	74.2	64.8	71.9	70.3	4	10	17	20	20	30	0	
Sums ..	128	72	57	87	130	137	216	243	25	30.50	......	......	71.5	75.5	56.0	67.8	320.2	331.3	330.1	327.2	860.1	696.7	842.4	799.7	76	178	111	166	100	178	1	
	Percentages.																								Percentages.							
Means	11.7	6.6	5.2	7.9	11.9	12.5	19.7	22.2	2.3	....	.....	.....	6.0	6.3	4.7	5.7	26.7	27.6	27.5	27.3	71.7	58.1	70.2	66.7	20.8	48.8	30.4	45.5	27.4	48.8	0.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.19 a. m., 2.19 p. m., and 10.19 p. m., local time.

Correction for instrumental error of barometer used: From 6.19 a. m., January 1, to 10.19 p. m., December 31, inclusive, + .004 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.780; February, 0.780; March, 0.770; April, 0.750; May, 0.720; June, 0.720; July, 0.710; August, 0.710; September, 0.720; October, 0.740; November, 0.770; December, 0.780.

J. GILLIGAN,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

MEMPHIS, TENN.

[Latitude, 35° 9′ N.; longitude, 90° 3′ W. Magnetic variation, 6° 30′ E. Elevation of barometer above sea-level, 321 feet. Elevation of exposed thermometer above ground, 53 feet. Elevation of rain-gauge above ground, 51 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.843	29.817	29.845	29.835	30.412	22	29.456	10	.956	35.4	44.0	39.1	39.5	68.0	27	10.0	21	58.0	47.2	31.3	1,268	1,248	1,138	3,654	28	SW.	30
Feb	29.959	29.913	29.934	29.935	30.392	27	29.437	24	.955	38.5	49.1	44.8	44.1	79.0	16	21.0	6	58.0	53.1	36.4	1,529	1,655	1,479	4,663	28	NW.	17
Mar	29.753	29.712	29.722	29.729	30.244	3	29.318	29	.926	44.1	53.5	50.0	49.3	74.0	28	29.0	8, 20	45.0	59.3	42.1	1,608	1,699	1,584	4,891	26	NW.	15
Apr	29.628	29.585	29.588	29.600	29.933	3	28.966	22	1.017	57.0	70.4	62.9	63.4	88.0	14	39.0	3	49.0	72.9	54.4	1,359	1,727	1,631	4,717	36	NW.	11
May	29.667	29.640	29.64[illegible]	29.650	29.934	6	29.348	20	.586	62.9	75.1	67.2	68.4	87.0	9, 18	41.0	22	46.0	77.6	58.9	1,416	1,871	1,575	4,862	32	W.	20
June[1] ...	29.658	29.624	29.628	29.637	29.892	1	29.330	10	.542	73.5	85.2	75.7	78.1	95.0	16 17 24	57.0	1	38.0	87.6	68.9	669	1,179	1,119	2,967	25	NW.	22
July	29.740	29.710	29.709	29.720	29.982	18	29.450	12	.532	75.6	88.2	78.4	80.7	97.0	22	64.0	30	33.0	89.8	71.4	993	1,516	1,304	3,813	48	N.	24
Aug	29.732	29.695	29.706	29.711	29.902	5	29.559	11	.343	70.9	84.3	73.3	76.8	94.0	1	61.5	9	32.5	86.2	68.5	921	1,332	1,459	3,712	28	NW.	23
Sept.....	29.739	29.691	29.707	29.712	29.904	9	29.530	22	.374	63.4	78.0	69.3	70.2	92.0	2, 15	51.0	10 22 23	41.0	79.7	61.1	806	1,361	1,258	3,425	23	NW.	21
Oct......	29.735	29.698	29.721	29.718	30.004	15	29.292	29	.712	60.9	70.3	64.1	65.1	88.0	7	44.0	26	44.0	72.5	58.2	1,167	1,667	1,535	4,369	26	S.	29
Nov.....	29.861	29.809	29.828	29.83[illegible]	30.348	16	29.362	21	.986	48.9	60.2	53.3	54.1	77.3	21	20.0	16	57.3	62.7	45.6	1,294	1,711	1,464	4,524	32	NW.	26
Dec.[1]	29.827	29.791	29.801	29.806	30.206	15	29.355	26	.851	42.2	52.0	46.5	46.9	72.0	1	22.5	19	49.5	57.4	39.6	1,632	1,603	1,513	4,748	41	W.	16
Sums..	357.142	356.685	356.831	356.886	.....	...	.....	....	......	673.3	810.3	726.6	736.6	....	......	......	......	....	846.0	636.4	14,662	18,569	17,059	50,345	....	....	......
																					Averages.						
Means.	29.762	29.724	29.736	29.741	30.412	*22	28.966	†22	......	56.1	67.5	60.6	61.4	97.0	‡22	10.0	*21	....	70.5	53.0	1,221.8	1,547.4	1,421.6	......	....	....	......

[1] One 11 a. m. observation missed.

* January.

† April.

‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	5	10	2	13	6	5	14	16	22	4.83	1.02	3, 4	6.7	7.6	5.7	6.7	31.3	32.3	30.4	31.3	85.5	66.3	71.9	74.6	6	10	15	14	2	15	0	
Feb	15	13	5	9	11	4	11	11	5	8.09	1.55	4	7.1	6.4	6.2	6.6	35.1	38.2	36.3	36.5	88.3	68.5	74.1	77.0	8	2	18	15	1	11	0	
Mar	8	11	4	5	12	16	16	15	6	4.43	1.74	30, 31	5.1	5.9	5.3	5.4	36.2	37.8	36.4	36.8	75.1	58.9	61.0	65.0	11	7	13	11	0	3	0	Last snow 21st.
Apr	5	7	6	24	10	9	11	14	4	4.66	1.49	21, 22	5.6	5.9	4.8	5.4	49.6	48.9	51.7	50.1	77.9	50.3	69.0	65.7	8	13	9	13	0	0	0	
May	4	8	3	21	14	8	11	13	11	6.55	2.93	30	4.5	6.0	3.4	4.6	55.5	56.0	56.9	56.1	77.6	53.1	70.3	67.0	12	10	9	10	0	0	0	Last frost 23d.
June[1]	3	2	1	19	8	7	22	10	17	4.92	2.16	22	4.4	5.9	3.2	4.5	68.2	68.2	69.8	68.6	83.9	57.4	80.8	74.0	7	17	5	11	0	0	11	
July	4	12	2	9	11	11	10	12	13	[2]1.78	[2]0.45	28	4.1	6.1	4.0	4.7	68.5	69.4	69.7	69.2	78.9	54.3	75.1	69.4	10	18	3	12	0	0	16	
Aug	5	21	1	3	5	9	10	30	9	1.85	.98	15	3.4	4.8	2.0	3.4	65.5	66.3	67.5	66.4	83.2	56.5	77.8	72.3	16	12	3	9	0	0	7	
Sept	6	8	1	6	7	13	10	32	7	1.05	.90	4, 5	3.1	3.5	1.1	2.6	57.4	56.0	59.5	57.6	80.6	48.4	72.1	67.0	16	14	0	4	0	0	3	
Oct	9	14	8	14	8	13	6	20	1	8.56	4.33	2, 3	6.6	6.3	4.1	5.7	57.7	58.9	58.5	58.4	89.9	69.6	82.8	80.8	7	13	11	11	0	0	0	
Nov	6	13	4	29	8	9	5	13	3	4.56	1.80	21, 22	4.3	5.6	3.7	4.5	42.3	42.2	44.8	42.9	78.9	54.1	72.7	68.6	14	9	7	12	0	3	0	First frost 1st.
Dec.[1]	8	7	6	24	6	6	11	19	5	5.86	2.38	23, 24	6.3	6.3	5.1	5.9	30.4	38.3	37.5	37.4	81.5	63.0	73.4	72.6	6	11	13	14	1	8	0	First snow 19th.
Sums ..	78	126	43	176	106	110	146	205	103	57.14	.....	.....	61.2	70.3	48.6	60.0	603.7	612.5	618.0	611.3	981.3	700.4	880.5	854.0	121	136	106	136	4	40	37	
	Percentages.																								Percentages.							
Means .	7.1	11.5	3.9	16.1	9.7	10.1	13.4	18.8	9.4	.....	.....	.....	5.1	5.8	4.0	5.0	50.3	51.0	51.5	50.9	81.8	58.4	73.4	71.2	33.3	37.5	29.2	37.3	1.1	11.0	10.1	

[1] One 11 p. m. observation missed.

[2] Approximated.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.08 a. m., 2.08 p. m., and 10.08 p. m., local time.
Correction for instrumental error of barometer used: From 6.08 a. m., January 1, to 10.08 p. m., December 31, inclusive, +0.018 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.360; February, 0.350; March, 0.350; April, 0.340; May, 0.330; June, 0.330; July, 0.330; August, 0.330; September, 0.340; October, 0.340; November, 0.350; December, 0.360.

D. T. FLANNERY,
Corporal, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

MILWAUKEE, WIS.

[Latitude, 43° 2′ N.; longitude, 87° 54′ W. Magnetic variation, 6° E. Elevation of barometer above sea-level, 697 feet. Elevation of exposed thermometer above ground, 105 feet. Elevation of rain-gauge above ground, 135 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.326	29.302	29.322	29.317	29.769	3	28.616	10	1.153	9.6	15.3	13.6	[1]12.8	[2]38.0	30	[2]-23.0	23	61.0	21.2	3.8	2,852	2,964	3,255	9,071	47	SE.	12
Feb	29.464	29.430	29.438	29.444	29.895	18	28.757	16	1.138	15.6	23.5	21.6	20.2	50.0	16	-13.0	1	63.0	27.3	12.0	3,014	3,121	3,228	9,363	35	W.	16
Mar ...	29.274	29.249	29.262	29.262	29.777	7	28.624	17	1.153	26.1	31.6	29.7	29.1	50.0	1	3.0	7	47.0	37.1	22.1	2,787	3,979	3,603	10,369	43	NE.	18
Apr	29.207	29.193	29.176	29.192	29.518	2	28.568	10	.950	39.3	45.8	43.9	43.0	75.0	14	23.0	2	52.0	50.5	36.2	3,065	3,817	3,343	10,225	47	SW.	15
May ...	29.187	29.173	29.172	29.177	29.518	6	28.787	19	.731	47.5	51.7	49.7	49.6	74.0	24	32.0	21	42.0	51.1	42.1	2,953	3,375	3,325	9,653	45	W.	19
June ...	29.167	29.155	29.148	29.157	29.536	1	28.855	11	.681	59.9	64.8	61.5	62.1	80.0	16	43.0	16	37.0	60.2	54.7	2,377	2,761	2,713	7,851	35	NW.	19
July ...	29.230	29.218	29.214	29.221	29.521	18	28.837	12	.684	63.8	72.5	66.4	67.6	90.0	3	50.0	9	40.0	76.4	59.3	2,566	2,804	2,637	8,007	46	SE.	20
Aug	29.329	29.309	29.306	29.315	29.567	6	28.952	22	.615	61.6	70.7	65.3	65.9	88.0	19	51.0	27	37.0	73.8	58.5	1,957	2,813	2,293	7,063	36	W.	19, 20
Sept ...	29.338	29.316	29.319	29.324	29.710	9	28.837	24	.873	53.2	60.9	56.5	56.9	83.0	1	39.0	10, 30	44.0	64.3	50.2	1,931	2,601	2,342	6,874	32	N.	7
Oct	29.353	29.343	29.347	29.348	29.877	15	28.693	29	1.184	45.6	51.7	49.0	48.8	78.0	8	31.0	20	47.0	53.7	42.8	3,055	3,409	3,078	9,542	36	SE., NW.	17 18 31
Nov	29.285	29.264	29.259	29.269	29.837	16	28.799	25	1.038	33.9	42.3	38.8	38.3	60.5	5	5.0	16	55.5	46.6	30.4	3,223	3,711	3,166	10,100	51	NW.	11
Dec	29.282	29.280	29.290	29.284	29.775	22	28.686	17	1.089	23.7	29.3	26.3	26.4	55.5	7	-7.0	19	62.5	34.6	19.5	3,347	3,603	3,182	10,132	46	SE.	23
Sums.	351.442	351.232	351.253	351.310	......	....	......	....	....	479.8	560.1	522.3	520.7	.....	..	......	.....	....	611.8	431.6	33,127	38,958	36,165	108,250	..	....	.....
																					Averages.						
Means	29.287	29.269	29.271	29.276	29.895	*18	28.568	†10	.....	40.0	46.7	43.5	43.4	90.0	‡3	-23.0	§23	....	51.0	36.0	2,760.6	3,246.5	3,013.8	....	..	....	.....

[1] One 7 a. m. observation missed.

[2] One observation on 11 p. m. missed

* February.

† April.

‡ July.

§ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from — North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. — Total amount.	Any 3 consecutive 8 hourly measurements. — Largest amount.	Date.	Washington time. — Cloudiness (in tenths). — 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. — 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). — 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	Remarks.
1883.										*In.*	*In.*						°	°	°	°												
Jan	10	2	5	5	12	11	31	14	3	1. 66	. 43	16, 17	5. 8	6. 2	4. 9	5. 6	5. 2	10. 5	9. 8	8. 5	82. 3	81. 4	84. 9	82. 9	8	14	9	17	22	30	0	
Feb......	6	3	5	5	6	9	25	25	0	2. 64	1. 10	2, 3	5. 1	5. 2	5. 1	5. 1	10. 1	16. 5	16. 8	14. 5	78. 9	74. 6	81. 1	78. 2	9	10	9	11	16	27	0	
Mar	9	18	5	4	6	12	14	25	0	. 28	. 06	18, 26	6. 7	6. 7	3. 2	5. 5	18. 6	20. 2	21. 0	19. 9	72. 8	63. 6	69. 5	68. 6	6	18	7	9	4	27	0	
Apr	6	23	9	9	8	14	14	6	1	. 86	. 27	6, 7	5. 9	5. 8	5. 0	5. 6	30. 3	32. 0	33. 7	32. 0	70. 7	60. 6	67. 9	66. 4	5	17	8	11	1	6	0	
May	7	17	5	21	5	10	13	15	0	5. 67	. 95	25	7. 2	6. 8	5. 0	6. 3	39. 4	39. 4	40. 6	39. 8	74. 6	66. 2	72. 5	71. 1	6	10	15	18	0	0	0	
June......	8	17	6	14	8	11	17	9	0	2. 84	. 87	8, 9	5. 8	7. 3	4. 1	5. 7	53. 1	53. 4	54. 8	53. 8	79. 1	68. 5	79. 4	75. 7	8	12	10	16	0	0	0	
July	2	13	6	7	9	18	20	18	0	7. 13	1. 58	16	5. 9	5. 9	4. 0	5. 3	56. 6	57. 9	57. 8	57. 4	78. 0	62. 3	74. 9	71. 7	8	14	9	15	0	0	0	
Aug	8	10	12	13	1	22	10	15	2	. 38	. 17	27, 28	3. 6	4. 1	3. 2	3. 6	54. 9	55. 8	56. 8	55. 8	79. 2	61. 6	74. 5	71. 8	14	11	6	7	0	0	0	
Sept	11	21	8	14	5	16	7	8	0	2. 32	. 92	20, 21	5. 4	5. 3	4. 0	4. 9	47. 9	49. 3	49. 2	48. 8	82. 4	67. 7	77. 3	75. 8	10	13	7	9	0	0	0	First frost 10th.
Oct	14	16	12	14	5	11	8	12	1	1. 92	. 67	13	7. 3	6. 9	7. 2	7. 1	39. 3	39. 5	41. 4	40. 1	79. 2	65. 6	76. 1	73. 6	4	9	18	17	0	1	0	First killing frost 1st.
Nov	9	1	3	3	8	28	16	22	0	1. 81	. 85	5, 6	4. 8	5. 6	4. 6	5. 0	27. 7	27. 7	31. 2	28. 9	78. 0	58. 4	74. 3	70. 2	10	11	9	12	3	14	0	First snow 14th.
Dec......	12	4	2	4	5	18	20	28	0	1. 96	. 42	22, 23	5. 8	5. 3	4. 3	5. 1	18. 4	20. 4	19. 7	19. 5	80. 3	69. 9	77. 0	75. 7	9	13	9	12	10	22	0	
Sums ..	102	145	78	113	78	180	195	197	7	29. 47	....	......	69. 3	71. 1	54. 6	64. 8	401. 5	422. 6	432. 8	419. 0	935. 5	800. 4	909. 4	881. 7	97	152	116	154	56	127	0	
	Percentages.																								Percentages.							
Means .	9. 3	13. 2	7. 1	10. 3	7. 1	16. 4	17. 8	18. 0	. 6	.....	.....	......	5. 8	5. 9	4. 6	5. 4	33. 5	35. 2	36. 1	34. 9	78. 0	66. 7	75. 8	73. 5	26. 6	41. 6	31. 8	42. 2	15. 3	34. 8	. 0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.17 a. m., 2.17 p. m., and 10.17 p. m., local time.

Correction for instrumental error of barometer used: From 6.17 a. m., January 1, to 10.17 p. m., December 31, inclusive, +.010 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.800; February, 0.800; March, 0.790; April, 0.770; May, 0.740; June, 0.740; July, 0.730; August, 0.730; September, 0.740; October, 0.760; November, 0.790; December, 0.810.

SAMUEL W. RHODE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

MOBILE, ALA.

[Latitude, 30° 41′ N.; longitude, 88° 2′ W. Magnetic variation, 6° E. Elevation of barometer above sea-level, 41 feet. Elevation of exposed thermometer above ground, 36 feet. Elevation of rain-gauge above ground, 51 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.			Monthly mean.	Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.			Total.	Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.		Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.		Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.142	30.099	30.145	30.129	30.696	23	29.817	6	.879	47.9	58.8	51.9	52.7	73.0	6	28.5	10	44.5	61.8	45.4	1,339	1,595	1,417	4,351	18	N., NW.	9, 13 22
Feb	30.213	30.184	30.226	30.208	30.628	27	29.904	15	.724	54.9	65.9	57.9	59.6	78.0	16	36.0	28	42.0	68.0	54.8	1,183	1,593	1,495	4,271	28	N.	13
Mar.....	30.060	30.017	30.037	30.038	30.494	1	29.648	25	.846	50.9	65.6	56.6	57.7	80.5	31	39.5	20	41.0	67.5	49.8	1,163	1,697	1,582	4,442	27	E.	25
Apr	29.969	29.940	29.959	29.956	30.275	16	29.505	22	.770	63.5	76.0	66.8	68.8	90.0	23	47.0	3	43.0	78.2	61.1	1,261	1,758	1,782	4,801	24	E., SW.	12, 22
May	30.021	29.978	30.003	30.001	30.188	24	29.629	20	.559	66.8	81.5	70.4	72.9	96.5	15	47.3	23	49.2	84.5	68.9	1,059	1,861	1,843	4,763	22	S.	30
June	30.000	29.969	29.986	29.985	30.134	4	29.802	8	.332	76.9	88.9	78.1	81.3	99.2	21	70.0	22 29	29.2	92.5	73.6	888	1,278	1,432	3,598	22	NE., SW.	20, 22
July	30.078	30.035	30.050	30.054	30.245	22	29.897	12	.348	78.2	91.6	80.9	83.6	101.0	17	71.0	5	30.0	95.7	75.6	857	1,462	1,340	3,659	18	NW.	26
Aug.....	30.010	29.963	29.996	29.990	30.152	15	29.824	29	.328	75.9	90.0	80.0	82.0	99.4	2	68.0	31	31.4	93.5	74.8	846	1,319	1,338	3,503	28	NE.	22
Sept.....	30.015	29.958	29.993	29.989	30.206	27	29.789	22	.417	70.2	87.0	76.6	77.9	94.5	5	57.0	25	37.5	88.4	69.3	893	1,291	1,215	3,399	16	N.	24
Oct.......	30.049	29.994	30.032	30.025	30.202	6	29.836	29	.366	67.0	81.3	71.7	73.3	91.0	2	46.3	26	44.7	82.5	65.7	1,212	1,656	1,616	4,484	22	SE.	18
Nov	30.162	30.111	30.156	30.143	30.525	16	29.899	25	.626	54.4	68.2	58.9	60.5	80.5	11	33.4	16	47.1	69.1	50.8	1,573	1,775	1,648	4,996	20	N.	12, 26
Dec	30.140	30.103	30.144	30.129	30.455	15	29.912	26	.543	51.5	62.8	54.9	56.4	74.0	24	28.5	16	45.5	64.6	46.5	1,292	1,576	1,400	4,268	17	NW.	27
Sums..	360.859	360.351	360.727	360.647	......	....	......	....	...	758.1	917.1	804.7	826.7	......	....	.....	....	.....	945.8	727.3	13,566	18,861	18,108	50,535	....	....	....
																					Averages.						
Means	30.072	30.029	30.061	30.054	30.696	*23	29.505	†22	....	68.2	76.4	67.1	68.9	101.0	‡17	28.5	*10 §16	....	78.8	60.6	1,130.5	1,571.8	1,509.0	......	....	....	....

* January. † April. ‡ July. § December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	23	14	3	9	17	11	6	6	4	8.80	1.59	17, 18	6.5	7.1	4.8	6.1	43.5	46.2	46.8	45.5	85.0	67.1	83.3	78.5	6	13	12	16	0	4	0	
Feb	26	15	4	8	18	10	2	0	1	3.63	1.42	23, 24	5.8	5.6	5.3	5.6	50.1	51.1	51.5	50.9	84.4	64.4	80.5	76.4	6	12	10	7	0	0	0	
Mar	21	13	2	6	14	14	8	10	5	4.21	1.82	7, 8	5.4	4.9	3.7	4.7	45.1	44.9	48.5	46.2	81.0	50.7	75.5	69.1	10	14	7	8	0	0	0	Last frost 23d.
Apr	17	7	3	9	26	14	2	11	1	7.25	2.68	8, 9	5.7	5.4	4.5	5.2	58.4	58.4	60.3	59.0	83.7	58.6	80.5	74.8	10	11	9	12	0	0	0	
May	15	11	2	10	23	14	8	9	1	8.51	5.62	29	3.7	4.8	1.8	3.4	60.7	60.7	62.0	61.1	81.1	50.9	75.5	69.2	14	15	2	8	0	0	1	
June....	11	3	9	8	23	16	14	4	2	9.43	2.57	22, 23	4.8	5.7	3.0	4.5	72.7	72.9	73.1	72.9	87.0	60.4	85.2	77.5	9	16	5	19	0	0	25	
July....	9	9	4	7	18	20	12	8	6	3.31	1.59	3, 4	2.6	4.8	1.4	2.9	72.3	72.1	73.5	72.6	82.6	54.2	78.9	71.9	16	14	1	8	0	0	28	
Aug	27	13	4	7	12	16	8	4	2	5.88	3.30	6	3.9	4.3	1.6	3.3	71.4	70.3	72.5	71.4	86.5	53.9	77.7	72.7	12	18	1	8	0	0	27	
Sept	30	12	3	12	10	5	12	4	2	.96	.57	23	4.1	2.9	2.4	3.1	64.8	64.2	68.0	65.7	83.7	47.9	74.9	68.8	17	11	2	4	0	0	14	
Oct	27	8	9	9	17	8	7	1	7	.84	.61	29	4.8	3.3	2.6	3.6	62.8	64.4	64.6	63.9	86.6	58.1	79.2	74.6	14	12	5	4	0	0	1	
Nov	37	9	1	10	20	7	1	2	3	2.57	.93	22, 23	4.6	4.0	3.4	4.0	47.7	49.8	50.2	49.2	78.5	56.4	74.7	69.9	15	9	6	9	0	0	0	First frost 3d.
Dec	42	4	2	13	16	3	6	4	3	3.11	1.09	7, 8	4.9	5.4	4.3	4.9	46.6	49.2	48.1	48.0	83.8	64.3	78.7	75.6	12	11	8	13	0	2	0	First killing frost 16th.
Sums .	285	118	40	108	214	138	86	63	37	58.50	....	......	56.8	58.2	38.8	51.3	696.1	704.2	719.1	706.4	1008.9	686.9	944.6	878.5	141	156	68	116	0	6	96	
	Percentages.																								Percentages.							
Means	26.0	10.8	4.2	9.9	19.5	12.6	7.9	5.8	3.4	.....	....	......	4.7	4.8	3.2	4.2	58.0	58.7	59.9	58.9	83.7	57.2	78.7	73.2	38.6	42.7	18.6	31.8	0	1.6	26.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.16 a. m., 2.16 p. m., and 10.16 p. m., local time.
Correction for instrumental error of barometer used: From 6.16 a. m., January 1, to 10.16 p. m., December 31, inclusive, +0.019 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.040; February, 0.040; March, 0.040; April, 0.040; May, 0.040; June, 0.040; July, 0.040; August, 0.040; September, 0.040; October, 0.040; November, 0.040; December, 0.040.

H. U. JONES,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

MONTGOMERY, ALA.

[Latitude, 32° 23′ N.; longitude, 86° 18′ W. Magnetic variation, 5° E. Elevation of barometer above sea-level, 219 feet. Elevation of exposed thermometer above ground, 24 feet. Elevation of rain-gauge above ground, 58 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.954	29.914	29.944	29.937	30.471	23	29.624	20	.847	44.2	55.5	49.7	49.8	77.0	20	25.0	12	52.0	58.7	41.9	1,185	1,451	1,381	4,017	23	NW.	21
Feb	30.041	29.997	30.035	30.024	30.451	27	29.751	24	.700	52.6	65.3	56.8	58.2	81.2	16	32.5	28	48.7	67.4	49.8	1,093	1,588	1,456	4,137	18	SE., NW.	2, 17
Mar	29.861	29.804	29.827	29.831	30.287	1	29.413	31	.874	47.0	63.4	54.0	54.8	78.6	30	35.0	20	43.6	65.5	45.1	1,092	1,929	1,621	4,642	32	SE.	25
Apr	29.788	29.737	29.757	29.761	30.125	3	29.290	22	.835	59.4	74.1	64.1	65.9	88.0	14	40.8	3	47.2	76.5	56.7	738	1,458	1,310	3,506	26	E.	9
May	29.836	29.778	29.797	29.804	29.994	24	29.425	20	.569	63.9	79.8	68.2	70.6	91.3	15	44.0	23	47.3	82.0	60.5	703	1,525	1,363	3,591	20	NW., SW.	15 20 21
June	29.817	29.775	29.787	29.793	29.979	4	39.600	25	.379	74.5	86.1	77.0	79.2	96.7	20	63.0	2	33.7	89.5	71.9	748	1,357	1,251	3,356	22	W.	23
July	29.883	29.831	29.851	29.855	30.087	22	29.692	12	.395	77.1	90.0	80.2	82.4	98.6	17	69.2	11	29.4	94.2	74.2	618	1,418	1,311	3,347	22	NW.	25
Aug	29.834	29.773	29.814	29.807	29.967	14	29.638	29	.329	73.7	80.1	78.2	80.3	96.6	3	65.0	31	31.6	91.4	71.8	419	1,129	1,071	2,619	26	W.	1
Sept	29.848	29.773	29.815	29.812	30.048	27	29.614	17	.434	67.7	85.9	74.4	76.0	96.0	4	53.0	25	43.0	87.2	66.5	516	1.096	930	2,542	17	NW.	17
Oct	29.886	29.817	29.860	29.854	30.077	17	29.564	29	.513	64.3	79.9	69.4	71.2	95.0	7	43.3	26	51.7	81.7	62.7	976	1,638	1,320	3,934	23	SW.	29
Nov	30.006	29.934	29.976	29.972	30.373	16	29.728	25	.645	50.8	66.7	56.4	58.0	82.3	10	29.0	16	53.3	68.4	49.0	827	1,474	1,136	3,437	20	N.	12
Dec	29.959	29.920	29.951	29.943	30.241	15	29.688	26	.553	48.1	60.2	52.5	53.6	72.5	23	26.9	16	45.6	62.6	44.4	743	1,138	906	2,787	22	NW.	14
Sums ..	358.713	358.058	358.414	358.393	......	...	......	....	......	723.3	896.0	780.9	800.0	....	....	......	....	......	925.1	694.0	9,656	17,201	15,056	41,915	...	....	....
																					Averages.						
Means.	29.893	29.838	29.868	29.866	30.471	*23	29.290	†22	......	60.3	74.7	65.1	66.7	98.6	‡17	25.0	*12	......	77.1	57.8	804.8	1,433.4	1,254.7	......	...	....	....

* January. † April. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	13	8	24	7	8	1	17	12	7.20	1.64	18, 19	6.2	6.6	4.8	5.9	39.3	40.9	42.0	40.7	83.5	62.0	75.8	73.8	8	10	13	17	0	9	0	
Feb	10	15	8	14	11	4	5	12	5	2.00	1.16	17, 18	7.1	6.4	3.6	5.7	47.5	46.7	48.3	47.5	83.6	54.9	73.3	70.6	7	11	10	7	0	0	0	
Mar	6	8	7	5	9	17	15	17	9	3.61	1.02	6, 7	4.7	3.8	3.1	3.9	41.5	36.2	42.0	39.9	81.9	41.2	65.5	62.9	14	10	7	13	0	0	0	
Apr	8	11	4	14	12	11	6	12	17	8.16	3.41	9	6.0	5.4	3.5	5.0	54.6	52.7	56.2	54.5	84.4	50.7	76.3	70.5	8	14	8	13	0	0	0	
May	4	9	1	7	11	18	6	20	17	2.62	1.37	30	3.7	5.4	2.9	4.0	57.0	52.8	57.4	55.7	78.6	43.1	68.5	63.4	13	13	5	6	0	0	1	
June	1	3	5	17	10	12	14	14	14	5.02	1.22	9, 10	4.8	6.1	3.0	4.6	69.5	66.5	69.6	68.5	84.3	54.7	78.7	72.6	10	15	5	14	0	0	14	
July	2	6	6	8	11	27	9	15	9	0.87	0.32	24, 25	2.5	5.5	2.0	3.3	69.6	66.1	69.3	68.3	78.0	47.3	70.1	65.1	14	15	2	6	0	0	29	
Aug	13	12	6	9	2	7	4	10	30	2.08	0.82	23	3.3	5.3	2.2	3.6	69.1	66.9	69.5	68.5	86.0	48.8	75.3	70.0	11	18	2	9	0	0	19	
Sept	8	11	15	9	4	2	5	10	26	0.22	0.07	23, 24	3.7	4.2	2.7	3.5	62.0	57.9	63.2	61.0	82.4	40.7	69.3	64.1	15	10	5	7	0	0	7	
Oct	12	13	16	14	5	11	4	11	7	2.00	1.69	22	4.6	4.8	2.9	4.1	59.1	57.5	58.8	58.5	83.8	49.8	70.3	68.0	13	11	7	5	0	0	9	First light frost 26th.
Nov	13	13	12	18	10	2	5	6	11	1.70	1.19	22	5.0	4.9	3.5	4.5	44.8	43.8	46.8	45.1	80.9	48.8	72.4	67.4	14	8	8	6	0	1	0	First killing frost 3d.
Dec......	15	4	7	11	7	8	3	15	23	4.23	1.56	7, 8	6.1	5.9	4.9	5.6	43.2	43.0	44.8	43.7	83.5	57.4	76.5	72.5	10	9	12	9	0	2	0	
Sums ..	95	118	90	150	99	127	77	159	180	39.71	.....	.....	57.7	64.3	39.1	53.7	657.2	631.0	667.9	651.9	990.9	599.4	872.0	820.9	137	144	84	112	0	12	79	
	Percentages.																								Percentages.							
Means .	8.7	10.8	8.2	13.7	9.0	11.6	7.0	14.6	16.4	.....	.....	.....	4.8	5.4	3.3	4.5	54.8	52.6	55.7	54.3	82.6	49.9	72.7	68.4	37.5	39.5	23.0	30.7	0	3.3	21.6	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.23 a. m., 2.23 p. m., and 10.23 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.23 a. m., January 1, to 10.23 p. m., June 30, inclusive, +.004 inch; from 6.23 a. m., July 1, to 10.23 p. m., December 31, inclusive, .000.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.240; February, 0.240; March, 0.240; April, 0.230; May, 0.230; June, 0.230; July, 0.220; August, 0.230; September, 0.230; October, 0.230; November, 0.240; December, 0.240.

GEORGE E. FRANKLIN,
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APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

MOORHEAD, MINN.

[Latitude, 46° 52′ N.; longitude, 96° 44′ W. Magnetic variation, 13° E. Elevation of barometer above sea-level, 923 feet. Elevation of exposed thermometer above ground, 23 feet. Elevation of rain-gauge above ground, 41 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.122	29.099	29.120	29.114	29.586	24	28.373	9	1.213	—14.8	— 3.9	—10.3	— 9.7	37.0	9	—42.0	20	79.0	1.2	—21.2	3,361	3,311	4,027	10,699	50	N.	19
Feb	29.195	29.177	29.174	29.182	29.664	2	28.630	10	1.034	— 4.7	9.8	3.6	2.9	40.0	14, 28	—33.0	4	73.0	15.4	— 9.9	2,086	2,600	2,828	7,514	44	N.	16
Mar	29.090	29.098	29.092	29.093	29.633	2	28.283	17	1.350	7.1	20.4	14.8	14.1	44.0	13, 17	—22.0	7	66.0	25.0	2.7	3,083	3,392	3,486	9,961	44	N.	9
Apr	28.931	28.907	28.918	28.919	29.440	21	28.418	13	1.022	32.2	46.4	39.3	39.3	74.0	27	6.0	1	68.0	49.6	29.7	2,491	3,151	3,149	8,791	44	NW.	15
May	28.959	28.936	28.941	28.945	29.294	12	28.182	18	1.112	30.7	50.6	47.9	48.1	72.0	16, 22	23.0	11	49.0	59.9	36.1	2,642	3,373	3,212	9,227	38	SE.	17
June	28.909	28.897	28.901	28.902	29.188	24	28.568	10	.620	53.1	71.6	60.7	61.8	100.3	30	32.0	3	68.3	75.6	48.3	1,647	2,567	2,372	6,586	36	S.	30
July[1]	28.966	28.937	28.930	28.914	29.269	28	28.523	11	.746	58.2	75.1	64.4	65.9	91.5	11	43.0	18	48.5	78.1	52.6	1,698	1,929	2,021	5,648	36	N.	26
Aug	29.025	29.011	28.983	29.006	29.320	5	28.460	21	.860	54.7	73.2	61.7	63.2	87.0	31	39.0	23	48.0	75.2	51.2	1,718	2,696	2,501	6,915	32	SE. N	19, 27
Sept	29.067	29.056	29.053	29.059	29.435	8	28.744	12	.691	44.3	64.3	51.5	53.4	87.0	12	17.0	30	70.0	66.5	42.3	[2]1,349	[2]2,001	[2]2,035	[2]5,385	40	S.	12
Oct	29.065	29.033	29.050	29.049	29.640	20	28.321	17	1.319	33.5	46.3	40.1	40.0	64.0	7, 9	15.0	20	49.0	48.4	32.4	2,119	3,168	2,770	8,057	44	SE.	7
Nov	28.996	28.954	28.977	28.976	29.647	28	28.397	25	1.250	16.6	31.6	21.5	23.2	55.0	7	—14.0	26	69.0	35.4	11.7	2,240	3,050	2,731	8,021	40	NW.	25
Dec.[3]	29.069	29.058	29.100	29.076	29.629	31	28.322	17	1.307	— 0.5	14.1	5.3	6.3	55.0	12	—34.0	27	89.0	18.5	— 5.6	2,145	2,586	2,530	7,261	56	NW.	7
Sums	348.394	348.163	348.239	348.265	......	....	......	....	......	319.4	505.5	400.5	408.5	......	......	......	....	....	548.8	270.3	26,570	33,824	33,662	94,065	...	......	....
																			Mean.		Averages.						
Means	29.033	29.014	29.020	29.022	29.664	*2	28.182	†18	......	26.6	42.1	33.4	34.0	100.3	‡30	—42.0	§20	....	45.7	22.5	2,215.0	2,819.0	2,805.0	......	...	......	....

[1] One 7 a. m. observation missed. [2] Incomplete. [3] One 3 p. m. and one 11 p. m. observation missed. * February. † May. ‡ June. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	29	1	0	13	19	4	9	14	4	1.19	0.46	29, 30	3.9	6.0	3.0	4.3	—15.3	—6.6	—11.4	—11.1	97.9	89.4	95.5	94.3	11	16	4	11	30	31	0	
Feb......	16	2	0	9	15	5	14	16	7	0.74	0.44	15, 16	5.0	4.2	2.9	4.0	— 5.7	5.6	— 0.6	— 0.2	96.2	83.2	83.1	87.5	10	13	5	7	24	28	0	
Mar	35	9	0	5	10	7	8	14	5	0.38	0.08	2, 9	4.3	5.9	3.7	4.6	8.0	13.9	10.5	9.1	83.7	75.9	82.5	80.7	11	12	8	9	24	31	0	
Apr......	32	9	8	12	9	6	3	10	1	1.65	0.33	21	4.3	5.8	3.8	4.6	28.5	30.7	31.8	30.3	86.3	59.5	76.4	74.1	11	12	7	9	1	17	0	
May	37	11	10	10	11	2	5	2	5	3.59	1.70	17, 18	4.5	6.5	3.7	4.9	34.6	36.1	40.3	37.0	82.0	48.2	75.4	68.5	8	17	6	9	0	8	0	
June	24	5	2	3	25	9	10	10	2	2.32	1.77	5, 6	3.9	5.2	1.7	3.6	46.0	50.8	51.4	49.4	77.5	49.7	71.9	66.4	13	14	3	4	0	0	2	
July[1]	15	8	5	12	18	12	4	16	2	4.57	1.63	19	5.0	5.0	3.9	4.6	52.1	58.8	55.2	54.7	80.4	56.1	72.4	69.6	9	18	3	8	0	0	2	
Aug	20	7	6	21	18	4	8	6	3	3.16	0.93	31	4.8	5.2	3.5	4.5	48.6	53.5	53.7	51.9	80.2	51.5	75.5	69.1	10	13	8	8	0	0	0	
Sept	21	10	3	9	26	5	4	9	3	2.51	1.94	20, 21	3.8	4.2	2.7	3.6	40.3	46.8	44.3	43.8	86.2	54.9	75.6	72.2	12	13	5	4	0	4	0	
Oct	14	7	8	30	12	2	7	7	6	3.22	1.31	17, 18	6.0	7.1	6.2	6.4	31.0	34.7	35.3	33.7	90.5	68.5	83.2	80.7	5	11	15	10	0	14	0	
Nov	18	3	3	13	19	12	5	16	1	0.16	0.06	23	5.2	5.8	4.2	4.9	12.8	19.3	16.1	16.1	84.8	63.5	79.2	75.8	7	17	6	5	10	30	0	
Dec.[2]	36	2	4	7	13	9	9	10	1	1.47	0.45	6, 7	4.9	5.5	4.6	5.0	— 2.6	6.3	2.0	1.9	91.8	72.3	87.4	83.8	8	15	7	15	19	30	0	
Sums ..	297	74	49	144	195	77	86	130	40	24.96	....	.....	55.6	65.9	43.9	55.0	273.3	347.9	328.6	316.6	1,037.5	772.7	958.1	922.7	115	171	77	99	108	198	4	
	Percentages.																								Percentages.							
Means .	27.1	6.8	4.5	13.2	17.9	7.0	7.9	11.9	3.7	.....	.....	......	4.6	5.5	3.7	4.6	22.8	29.0	27.4	26.4	86.5	64.4	79.8	76.9	31.7	47.1	21.2	27.1	29.7	53.0	1.1	

[1] One 7 a. m. observation missed.

[2] One 3 p. m. and one 11 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11p. m., Washington time, correspond with 5.41 a. m., 1 41 p. m., and 9.41 p. m., local time.

Correction for instrumental error of barometer used: From 5.41 a. m., January 1, to 9.41 p. m., December 31, inclusive, +0.004 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.110; February, 1.100; March, 1.080; April, 1.030; May, 0.980; June, 0.970; July, 0.960; August, 0.970; September, 0.990; October, 1.020; November, 1.060; December, 1.110.

H. BESSANT,
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APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

MOUNT WASHINGTON, N. H.

[Latitude, 44° 16′ N.; longitude, 71° 18′ W. Magnetic variation, 13° W. Elevation of barometer above sea-level, 6,279 feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 2 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	23.424	23.409	23.422	23.418	23.863	19	22.911	21	.952	0.5	1.7	0.1	0.8	38.0	21	−29.0	23	67.0	10.3	−9.0	8,043	9,372	10,146	[1]27,561	152	NW.	8
Feb	23.434	23.438	23.453	23.442	24.028	24	22.866	7	1.162	1.9	3.3	1.6	2.3	43.0	17	−28.5	27	71.5	13.3	−8.6	9,512	11,592	11,298	32,402	126	NW.	27
Mar	23.230	23.233	23.233	23.232	23.653	26	22.709	10	.944	−0.5	3.0	0.3	0.9	35.0	27	−34.0	5	69.0	11.7	−10.1	10,485	11,890	12,425	[1]34,800	150	NW.	25
Apr	23.559	23.566	23.590	23.572	24.099	14	23.242	6	.857	17.5	22.7	19.8	20.0	50.0	15	−10.0	1	60.0	26.8	12.5	7,505	7,895	8,500	[1]23,900	88	SE.	11
May	23.708	23.727	23.715	23.717	24.105	18	23.367	15	.738	31.4	37.3	33.4	34.0	61.3	26	10.8	9	50.5	41.5	26.1	8,500	8,385	8,525	25,410	96	SW.	31
June	23.857	23.871	23.861	23.863	24.263	2	23.274	12	.989	45.0	49.8	45.1	46.6	65.4	27	20.8	14	44.6	53.1	39.8	8,940	7,605	7,965	24,570	128	NW.	12
July	23.845	23.859	23.852	23.852	24.072	27	23.615	24	.457	44.5	49.6	45.1	46.4	60.5	7	27.0	1	33.5	51.9	40.3	7,790	7,005	7,585	22,380	80	W., NW.	2, 23
Aug	23.885	23.892	23.886	23.888	24.154	15	23.580	3	.574	41.8	46.8	42.9	43.8	58.3	23	20.4	27	37.9	49.2	37.8	8,660	7,550	8,340	[1]24,550	94	NW.	6
Sept	23.862	23.866	23.848	23.859	24.240	19	23.000	25	1.240	37.2	42.1	37.5	38.9	60.0	13	14.8	26	45.2	46.0	31.3	5,436	5,920	6,315	[1]17,665	108	NW.	9
Oct.[2]	23.823	23.808	23.808	23.813	24.117	17	22.954	30	1.163	28.0	31.8	28.6	29.3	54.5	10	6.0	15	48.5	35.6	22.4	6,250	6,230	6,445	[1]18,925	94	W.	30
Nov	23.607	23.596	23.603	23.602	24.136	25	22.526	12	1.610	18.3	20.6	19.5	19.5	46.0	22	−17.2	29	63.2	27.4	11.4	7,455	9,490	9,005	[1]25,950	100	NW., W. SE.	12, 22, 26
Dec	23.426	23.430	23.430	23.429	24.056	6	22.358	28	1.698	7.6	10.3	9.3	9.1	37.2	8	−41.0	22	78.2	19.8	−3.0	9,010	10,585	9,440	[1]29,035	132	NW.	28
Sums	283.660	283.695	283.701	283.687	......	...	......	...	......	273.2	318.5	283.2	291.6	....	...	......	...	....	386.6	190.9	97,580	103,579	105,989	307,148	....	....	....
																					Averages.						
Means	23.638	23.641	23.642	23.640	24.263	*2	22.358	†28	......	22.8	26.5	23.6	24.8	65.4	*27	−41.0	†22	....	32.2	15.9	8,131.7	8,631.6	8,832.4	....	....	....	....

[1] Insufficient on account of frost work.

[2] One 3 p. m. observation missed.

* June.

† December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	2	2	0	2	5	5	14	63	0	4.16	.73	27, 28	3.2	4.2	4.1	3.8	−4.0	−2.4	−4.9	−3.8	83.3	83.1	81.9	82.8	11	17	3	21	30	31	0	
Feb	1	0	0	0	3	8	12	60	0	5.65	1.03	3, 4	4.4	4.9	5.2	4.8	Zero	1.4	−0.2	0.4	92.6	92.1	92.8	92.5	8	13	7	22	24	28	0	
Mar	4	3	3	3	3	4	12	61	0	4.18	1.25	20	2.6	3.4	1.9	2.6	−1.1	2.2	−0.6	0.2	97.7	96.5	96.4	96.9	18	12	1	16	29	31	0	
Apr	2	1	0	3	4	8	18	52	2	6.29	1.73	5	3.3	4.7	2.6	3.5	14.6	19.7	17.6	17.3	90.6	88.6	91.8	90.3	15	10	5	12	20	28	0	
May	4	1	0	6	14	17	8	42	1	9.10	1.70	30, 31	4.2	3.8	4.2	4.1	20.2	32.4	30.7	30.8	91.6	83.3	90.3	88.4	9	20	2	20	3	23	0	
June	2	2	2	5	14	10	20	35	0	11.30	2.60	12, 13	4.4	4.4	2.2	3.7	41.9	45.6	43.3	43.6	89.8	86.7	93.6	90.0	12	15	3	17	0	4	0	
July	4	3	4	3	2	9	20	48	0	11.14	2.46	3, 4	2.5	4.3	1.7	2.8	42.0	46.9	43.9	44.3	91.5	90.7	95.5	92.6	13	17	1	19	0	1	0	
Aug	5	11	4	6	1	4	6	56	0	6.06	1.73	2	2.5	4.9	1.5	3.0	39.6	43.9	41.2	41.6	92.3	90.0	93.8	92.0	15	16	0	15	0	3	0	
Sept	9	5	5	8	3	12	10	37	1	6.90	1.84	2, 3	2.7	4.9	3.4	3.7	32.4	37.4	33.4	34.4	84.8	85.1	87.1	85.7	11	17	2	16	3	14	0	
Oct.[3]	4	6	6	5	5	16	15	35	1	5.55	1.79	29, 30	2.8	4.2	2.7	3.2	26.5	28.5	26.2	27.1	94.1	90.9	91.4	92.1	14	14	2	13	10	26	0	
Nov	6	0	1	2	2	10	13	56	0	3.72	.93	23	2.3	5.2	3.3	3.6	16.9	16.4	16.1	[1]16.5	91.8	84.8	87.5	[1]88.0	10	18	2	19	19	30	0	
Dec	0	0	1	1	4	5	22	60	0	2.66	.51	27, 28	3.4	3.0	4.5	3.6	4.2	8.2	7.6	[2]6.7	80.0	82.0	82.9	[2]81.6	12	14	5	21	26	31	0	
Sums	43	34	26	44	60	108	170	605	5	76.71	....	......	38.3	51.9	37.3	42.4	242.2	280.2	254.3	259.1	1080.1	1053.8	1085.0	1072.9	148	183	33	211	164	250	0	Frost during each mo. of the year.
	Percentage.																								Percentage.							
Means	3.9	3.1	2.4	4.0	5.5	9.9	15.5	55.3	0.5	.....	....	......	3.2	4.3	3.1	3.5	20.2	23.4	21.2	21.6	90.0	87.8	90.4	89.4	40.7	50.3	9.1	57.8	44.9	68.5	0.0	

[1] One 7 a. m. observation missed.

[2] Two 7 a. m., two 3 p. m., three 11 p. m. observations missed.

[3] One 3 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.23 a. m., 3.23 p. m., and 11.23 p. m., local time.

Correction for instrumental error of barometer used: From 7.23 a. m., January 1, to 11.23 p. m., December 31, inclusive, +0.009 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 6.630; February, 6.620; March, 6.520; April, 6.410; May, 6.180; June, 6.120; July, 6.070; August, 6.080; September, 6.150; October, 6.340; November, 6.560; December, 6.630.

EDWARD A. BEALS,
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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

NASHVILLE, TENN.

[Latitude, 36° 10′ N.; longitude, 86° 47′ W. Magnetic variation, 5° 30′ E. Elevation of barometer above sea-level, 549 feet. Elevation of exposed thermometer above ground, 61 feet. Elevation of rain-gauge above ground, 79 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In.		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles.	Miles.			
Jan	29.591	29.541	29.588	29.573	30.147	22	29.113	20	1.034	33.9	43.0	38.2	38.4	63.5	26	11.3	12	52.2	46.8	30.9	1,532	1,777	1,892	5,201	48	W.	10
Feb	29.702	29.655	29.682	29.680	30.110	27	29.216	24	.894	40.4	48.9	44.6	44.6	77.4	16	21.6	18	55.8	54.0	36.3	1,696	2,008	1,893	5,597	31	SE.	16
Mar	29.485	29.447	29.471	29.468	29.937	3	29.005	31	.932	41.1	52.3	46.9	46.8	71.7	18	25.5	20	46.2	56.9	38.1	1,513	2,186	2,001	5,700	34	W.	10
Apr	29.404	29.371	29.373	29.383	29.763	3	28.803	22	.960	54.2	66.6	59.8	60.2	87.5	14	34.7	3	52.8	69.5	51.3	1,263	1,916	1,778	4,957	40	W.	11
May	29.446	29.399	29.419	29.421	29.710	6	28.947	20	.763	59.9	73.8	65.1	66.3	85.8	8	42.4	22	43.4	76.5	56.8	1,326	2,178	2,045	5,549	41	NW.	20
June	29.436	29.390	29.406	29.411	29.668	1	29.127	10	.541	71.0	83.0	74.2	76.1	92.4	17	54.9	1	37.5	85.4	68.3	931	1,777	1,609	4,317	24	S., W.	4 12 21
July	29.519	29.484	29.493	29.499	29.746	18	29.202	12	.544	71.4	83.3	75.1	76.6	93.6	24	61.1	10	32.5	86.4	68.9	775	1,600	1,475	3,850	61	E.	5
Aug.....	29.502	29.461	29.482	29.482	29.660	5	29.331	28	.329	68.1	81.3	72.9	74.1	92.3	19	54.7	31	37.6	83.5	66.7	703	1,419	1,235	3,857	30	SW.	21
Sept	29.503	29.446	29.477	29.475	29.665	26	29.255	24	.410	61.4	77.8	67.6	68.9	90.2	2	50.6	10	39.6	79.6	60.1	886	1,571	1,468	3,925	24	W.	5
Oct.....	29.512	29.482	29.511	29.502	29.788	16	29.074	29	.714	58.9	68.3	61.4	62.9	85.7	11	44.6	16, 26	41.1	70.8	56.4	1,391	1,772	1,588	4,751	48	SW.	29
Nov.....	29.631	29.575	29.604	29.603	30.112	16	29.242	21	.870	44.9	57.6	50.1	50.9	75.2	10	16.5	16	58.7	60.8	41.9	1,303	1,743	1,662	4,708	36	S.	21
Dec.....	29.577	29.544	29.564	29.562	29.872	15	29.151	16	.721	39.4	49.1	43.0	43.8	70.4	1	20.5	17	49.9	53.3	35.1	1,448	1,847	1,640	4,935	37	NW.	17
Sums..	354.308	353.795	354.070	354.059	......	...	......	....	.....	644.6	785.0	698.9	709.6	....	....	....	....	....	823.5	610.8	14,767	21,794	20,286	56,847	....	....	....
																					Averages.						
Means.	29.526	29.483	29.506	29.505	30.147	*22	28.803	†22	.....	53.7	65.4	58.2	59.1	93.6	‡24	11.3	*12	....	68.6	50.9	1,230.6	1,816.2	1,690.5	......	....	....	....

* January. † April. ‡ July.

Month.	Winds at 7 a. m., 8 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	5	9	11	14	11	5	13	24	1	3.73	0.78	20	7.9	8.0	7.6	7.8	29.7	33.8	31.6	31.7	84.5	72.0	77.8	78.1	4	6	21	18	1	16	0	
Feb	14	11	14	8	14	2	8	12	1	7.89	2.10	6, 7	7.4	6.8	6.2	6.8	34.3	37.6	37.1	36.3	79.2	67.9	76.1	74.4	6	5	17	14	0	10	0	
Mar	10	9	7	5	8	17	14	22	1	3.94	1.41	25	6.0	7.0	4.7	5.9	33.7	34.7	35.6	34.7	75.7	54.1	66.4	65.4	9	9	13	9	0	10	0	
Apr	5	3	14	18	18	5	8	15	4	9.10	5.04	21, 22	5.9	6.6	5.1	5.8	47.5	46.6	49.2	47.8	78.5	52.9	69.7	67.0	5	13	12	10	0	0	0	
May	7	9	5	15	18	11	6	20	2	4.79	1.86	29, 30	4.2	5.8	4.5	4.8	52.4	52.8	54.2	53.1	77.3	49.3	69.0	65.2	8	15	8	7	0	0	0	
June	7	5	7	18	11	16	16	10	0	3.79	0.77	7, 10	4.8	5.7	4.9	5.1	65.7	65.6	67.0	66.1	83.9	56.8	78.5	73.1	4	22	4	14	0	0	5	
July	11	15	12	8	7	17	11	12	0	4.84	1.04	14, 15	5.0	6.5	4.0	5.2	67.0	67.1	68.9	67.7	86.2	59.7	81.7	75.9	6	17	8	16	0	0	9	
Aug	14	15	15	7	7	3	10	22	0	4.39	2.26	1, 2	3.6	5.5	3.0	4.0	64.8	63.8	67.1	65.2	89.5	57.1	82.7	76.4	14	14	3	8	0	0	4	
Sept	14	9	11	9	3	8	17	19	0	2.19	0.86	22, 23	5.1	5.1	3.5	4.6	56.9	58.3	59.4	58.2	85.3	52.9	75.7	71.3	10	13	7	5	0	0	1	
Oct	12	13	15	17	8	9	10	9	0	5.24	1.69	28, 29	7.4	7.3	5.1	6.6	55.5	57.8	56.4	56.6	88.7	71.1	83.7	81.2	7	8	16	13	0	0	0	
Nov	4	7	10	22	17	5	7	18	0	3.07	0.81	21, 22	5.1	5.0	4.4	4.8	40.0	43.9	42.9	42.3	83.2	61.8	76.9	74.0	11	11	8	12	0	9	0	
Dec	13	6	13	14	13	6	13	15	0	4.93	1.60	23, 24	7.7	7.3	6.5	7.2	35.6	37.6	37.0	36.7	86.4	66.5	80.0	77.6	3	12	16	13	0	13	0	
Sums	116	111	134	155	135	104	133	198	9	57.90	....	....	70.1	76.6	59.5	68.6	583.1	599.6	606.4	596.4	998.4	722.1	918.2	879.6	87	145	133	139	1	57	19	
	Percentages.																								Percentages.							
Means	10.6	10.1	12.2	14.2	12.3	9.5	12.1	18.1	.8	....	....	....	5.8	6.4	5.0	5.7	48.6	50.0	50.5	49.7	83.2	60.2	76.5	73.3	23.8	39.7	36.4	38.1	0.3	15.6	5.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.21 a. m., 2.21 p. m., and 10.21 p. m., local time.

Correction for instrumental error of barometer used: From 6.21 a. m., January 1, to 10.21 p. m., December 31, inclusive, +.007 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.610; February, 0.610; March, 0.600; April, 0.580; May, 0.570; June, 0.560; July, 0.560; August, 0.560; September, 0.570; October, 0.580; November, 0.600; December, 0.610.

L. N. JESUNOFSKY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

NEW HAVEN, CONN.

[Latitude, 41° 18′ N.; longitude, 72° 56′ W. Magnetic variation, 8° 30′ W. Elevation of barometer above sea-level, 107 feet. Elevation of exposed thermometer above ground, 112 feet. Elevation of rain-gauge above ground, 109 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.078	30.036	30.056	30.057	30.477	24	29.437	10	1.040	20.8	27.3	23.2	23.8	47.0	21	Zero	13, 23	47.0	32.1	16.3	2,040	2,431	2,129	6,600	30	NE.	10
Feb	30.122	30.099	30.137	30.119	30.639	24	29.490	7	1.149	24.4	31.8	26.7	27.6	53.0	4, 17	7.5	24	45.5	36.7	19.6	1,423	2,062	1,482	4,967	24	NW.	12
Mar	29.864	29.777	29.835	29.825	30.364	5	29.025	10	1.339	26.1	35.5	28.0	29.9	58.0	2	3.0	9	55.0	39.0	20.3	1,485	2,715	2,005	6,205	38	NE.	10
Apr	29.916	29.861	29.899	29.892	30.356	14	29.542	6	.814	40.8	49.6	42.1	44.2	64.0	18	22.0	1	42.0	52.3	35.9	1,422	2,258	1,556	5,236	22	N.	8
May	29.868	29.823	29.857	29.849	30.301	1	29.434	15	.867	53.4	63.2	53.0	56.5	78.0	8	34.0	1	44.0	66.3	47.6	1,425	2,063	1,774	5,262	23	W.	29
June	29.889	29.853	29.864	29.869	30.397	2	29.427	11	.970	65.7	74.6	64.6	68.3	87.0	6	46.0	3	41.0	76.7	59.6	1,125	1,860	1,622	4,607	21	W.	11
July	29.867	29.823	29.847	29.846	30.111	21	29.626	13	.485	68.2	77.3	67.9	71.1	91.0	7	52.0	1	39.0	80.3	62.4	1,160	2,041	1,668	4,869	26	SW.	2
Aug.....	29.933	29.883	29.921	29.912	30.194	15	29.619	2	.575	62.5	75.5	63.8	67.3	85.0	13 21 22	48.0	28	37.0	77.6	57.9	1,288	2,016	1,545	4,849	25	S.	3
Sept.....	29.984	29.935	29.954	29.958	30.331	10	29.274	24	1.057	55.0	67.5	57.7	60.1	79.0	2	38.0	10	41.0	70.4	50.6	1,582	2,088	1,731	5,401	27	SW.	25
Oct......	30.079	30.010	30.053	30.047	30.541	17	29.244	29	1.297	44.3	56.3	46.4	49.0	79.0	11	28.0	18	51.0	58.4	40.4	1,856	2,199	1,717	5,772	28	W.	30
Nov.....	30.032	29.982	30.004	30.006	30.469	17	29.548	11	.921	38.2	46.8	41.4	42.1	62.8	6	17.5	17	45.3	50.5	34.1	1,622	2,201	1,854	5,677	36	W.	18
Dec	29.987	29.946	29.970	29.968	30.561	23	29.184	27	1.377	26.4	33.8	29.0	29.7	52.4	8	−6.0	23	58.4	38.3	21.5	1,894	2,312	1,594	5,800	28	NE.	24
Sums..	359.619	359.028	359.397	359.348	......	....	......	....	......	525.8	639.2	543.8	569.6	....	....	......	......	....	678.6	466.2	18,322	26,246	20,677	65,245	....	....	....
																					Averages.						
Means.	29.968	29.919	29.950	29.946	30.639	*24	29.025	†10	......	43.8	53.3	45.3	47.5	91.0	‡7	−6.0	§23	....	56.6	38.8	1,526.8	2,187.2	1,723.1	......	....	....	....

* February. † March. ‡ July. § December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	22	25	1	3	0	13	12	11	6	3.60	1.12	20, 21	7.4	6.4	6.8	6.9	15.2	16.4	15.5	15.7	79.7	65.1	74.4	73.1	4	11	16	15	14	29	0	
Feb	5	11	2	4	5	9	16	18	14	5.00	1.22	25	5.3	6.4	5.1	5.6	17.5	18.1	17.9	17.8	75.9	59.8	70.6	68.8	5	15	8	16	4	27	0	
Mar	27	5	2	3	7	13	7	17	12	1.64	0.51	20	5.1	4.5	3.1	4.2	16.9	16.2	18.5	17.2	68.3	48.0	68.1	61.5	11	15	5	5	5	27	0	
Apr	18	16	3	3	17	13	4	10	6	2.23	0.43	23, 24	5.8	6.0	5.6	5.8	32.7	33.2	34.2	33.4	74.7	57.8	75.5	69.3	7	11	12	15	0	8	0	
May	13	10	5	18	19	13	3	9	3	4.52	3.32	22	4.9	6.2	4.7	5.3	45.2	45.5	45.4	45.4	76.8	56.4	77.0	70.1	8	16	17	10	0	0	0	Last frost of spring May 1. First light frost of autumn September 10. First killing frost of autumn October 5.
June	5	3	7	14	18	28	5	8	2	1.83	0.59	19	4.2	5.8	3.5	4.5	58.6	59.4	59.3	59.1	79.3	61.7	84.0	75.0	9	15	6	12	0	0	0	
July	12	3	2	3	16	27	14	14	2	5.67	3.62	28, 29	4.3	5.5	3.7	4.5	60.7	59.7	61.3	60.6	77.4	56.9	80.2	71.5	9	17	5	8	0	0	1	
Aug	19	17	2	5	9	15	8	17	1	1.26	0.46	18, 19	3.4	4.1	2.0	3.2	56.1	58.0	56.4	56.8	80.1	56.6	77.7	71.5	17	11	3	6	0	0	0	
Sept	14	15	4	5	22	12	6	12	0	2.43	1.08	24	4.8	5.0	4.4	4.7	49.9	51.4	51.6	51.0	83.5	58.9	78.5	73.6	11	10	9	11	0	0	0	
Oct	32	16	5	4	15	7	8	11	0	5.87	1.61	13, 14	5.3	6.0	4.2	5.2	38.8	41.3	39.5	39.9	81.5	60.7	77.8	73.3	10	11	10	11	0	6	0	
Nov	15	6	0	2	11	28	13	14	1	1.56	0.88	26, 27	4.9	4.9	3.6	4.5	31.0	32.6	33.4	32.3	75.4	60.2	73.6	69.7	12	11	7	7	0	14	0	
Dec	19	16	1	1	6	16	8	24	2	3.85	0.78	27	5.4	5.8	5.1	5.4	21.4	23.1	23.4	22.6	81.2	66.9	80.7	76.3	7	13	11	16	8	27	0	
Sums ..	201	143	34	65	145	194	99	165	49	39.46	....	......	60.8	66.6	51.8	59.8	444.0	454.9	456.4	451.8	933.8	709.0	918.1	853.7	110	156	99	132	31	138	1	
	Percentages.																								Percentages.							
Means ..	18.4	13.1	3.1	5.9	13.2	17.7	9.0	15.1	4.5	......	....	......	5.1	5.6	4.3	5.0	37.0	37.9	38.0	37.6	77.8	59.1	76.5	71.1	30.1	42.7	27.1	36.2	8.5	37.8	0.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.16 a. m., 3.16 p. m., and 11.16 p. m., local time.

Correction for instrumental error of barometer used: From 7.16 a. m., January 1, to 11.16 p. m., December 31, inclusive, +0.007 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.120; February, 0.120; March, 0.120; April, 0.120; May, 0.120; June, 0.110; July, 0.110; August, 0.110; September, 0.110; October, 0.120; November, 0.120; December, 0.120.

J. H. SHERMAN,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

NEW LONDON, CONN.

[Latitude, 41° 21′ N.; longitude, 72° 5′ W. Magnetic variation, 9° W. Elevation of barometer above sea-level, 47 feet. Elevation of exposed thermometer above ground, 29 feet. Elevation of rain-gauge above ground, 57 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.165	30.116	30.133	30.138	30.590	24	29.451	10	1.139	23.4	30.1	26.4	26.6	45.0	31	2.0	13, 23	43.0	32.9	18.7	1,408	2,160	1,679	5,247	30	E.	31
Feb	30.215	30.176	30.223	30.205	30.746	24	29.567	7	1.179	28.0	33.9	29.4	30.4	49.0	17	11.0	24	38.0	35.7	22.1	1,434	1,912	1,495	4,841	24	SE. W. NW.	10 12 27
Mar	29.943	29.853	29.907	29.901	30.464	5	28.979	10	1.485	29.9	36.4	30.3	32.2	56.0	15	6.0	5	50.0	38.9	22.8	1,450	2,599	1,984	6,033	26	SE., NW.	6, 11
Apr	29.987	29.942	29.976	29.968	30.449	14	29.608	20	0.841	43.1	49.8	42.8	45.2	66.0	18	24.0	1	42.0	51.5	36.8	848	2,041	1,441	4,330	21	S.	9, 19
May	29.959	29.918	29.943	29.940	30.408	1, 2	29.520	15	0.888	56.1	60.6	53.1	56.6	73.0	8, 25	39.0	2, 14	34.0	63.8	46.5	969	1,978	1,580	4,527	32	E.	10
June	29.985	29.946	29.956	29.962	30.524	2	29.519	11	1.005	67.0	71.3	64.0	67.4	83.0	7	48.0	3	35.0	74.2	58.2	824	1,926	1,331	4,081	21	E.	28
July	29.959	29.917	29.934	29.937	30.221	21	29.716	24	0.505	70.5	75.1	67.9	71.2	89.0	7	53.0	1	36.0	79.2	62.0	661	1,831	1,408	3,900	40	NW.	2
Aug	30.022	29.970	29.990	29.904	30.284	15	29.687	2	0.597	65.8	73.3	64.5	67.9	84.0	21	49.0	28	35.0	76.0	58.8	453	1,649	1,131	3,233	24	S.	2
Sept	30.076	30.025	30.040	30.047	30.392	10	29.386	24	1.006	57.9	66.4	58.9	61.1	78.0	14, 15	41.0	10 11 26	37.0	69.2	51.0	830	1,703	1,448	3,981	24	W.	25
Oct	30.175	30.095	30.137	30.136	30.645	17	29.341	2	1.304	48.0	56.1	48.7	50.9	70.2	11	27.2	18	43.0	58.2	40.7	1,288	1,902	1,242	4,432	33	SE.	2
Nov	30.129	30.066	30.088	30.094	30.563	17	29.634	12	0.929	41.2	48.0	43.0	44.1	63.2	6	17.0	17	46.2	52.0	34.6	1,472	2,158	1,555	5,185	32	W.	12
Dec	30.088	30.036	30.043	30.056	30.700	23	29.224	27	1.476	28.4	35.1	31.0	31.5	56.0	8	—7.5	23	63.5	39.3	21.9	1,822	2,339	1,708	5,869	32	NW.	28
Sums ..	360.703	360.060	360.370	360.378	......	....	......	....	.....	559.3	636.1	560.0	585.1	....	.....	.....	.....	.....	670.9	473.1	13,459	24,198	18,002	55,659	....	....	....
																					Averages.						
Means .	30.059	30.005	30.031	30.032	30.746	*24	28.979	†10	......	46.6	53.0	46.7	48.8	89.0	‡7	—7.5	§23	....	55.9	39.4	1,121.6	2,016.5	1,500.2	......	....	....	....

* February. † March. ‡ July. § December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity. (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan......	17	21	1	4	3	13	9	18	7	4.38	1.21	20, 21	7.1	6.7	6.5	6.8	17.0	20.4	16.3	17.9	77.0	68.5	66.4	70.6	4	13	14	15	13	28	0	
Feb	10	5	3	3	4	9	22	18	10	6.02	1.38	25	5.2	6.1	4.8	5.4	21.8	26.1	22.6	23.5	77.9	73.9	76.0	75.9	8	12	8	19	4	26	0	
Mar ...	17	6	4	1	8	14	15	19	9	3.35	1.31	10	4.7	4.1	3.2	4.0	21.8	24.9	21.1	22.6	71.5	64.1	68.1	67.9	13	12	6	7	5	26	0	
Apr.....	16	8	8	7	16	12	5	9	9	3.61	0.98	12, 13	5.2	5.6	4.9	5.2	34.5	36.2	35.3	35.3	73.7	63.4	76.0	71.0	8	13	9	13	0	7	0	
May.....	11	13	10	10	18	13	7	4	7	5.73	2.84	22	4.4	6.0	4.0	4.8	46.3	48.7	43.9	46.3	72.5	67.3	73.2	71.0	7	20	4	11	0	0	0	
June.....	5	6	4	15	17	23	5	3	12	3.30	1.26	27, 28	5.5	5.3	4.0	4.9	59.0	60.2	58.4	59.2	77.9	70.1	83.5	77.2	10	15	5	11	0	0	0	
July.....	3	6	0	8	11	20	14	14	17	7.84	2.10	28, 29	3.5	4.2	3.8	3.8	62.1	64.0	60.9	62.8	76.1	69.8	79.0	75.0	12	14	5	11	0	0	0	
Aug.....	5	12	2	3	8	16	14	11	22	2.76	1.33	18, 19	3.5	3.9	2.6	3.3	57.4	60.5	57.8	58.6	75.4	66.0	79.9	73.8	16	11	4	7	0	0	0	
Sept.....	11	9	2	13	6	18	8	10	13	3.24	1.16	24, 25	5.2	5.3	5.2	5.2	51.8	55.7	52.9	53.5	81.3	70.2	81.3	77.6	8	11	11	14	0	0	0	
Oct......	22	14	2	7	5	9	8	12	14	7.33	2.05	23, 24	4.5	5.9	4.3	4.9	42.3	46.3	42.3	43.6	81.8	71.4	79.1	77.8	11	12	8	11	0	5	0	
Nov	11	6	1	4	4	22	14	21	7	3.19	1.68	26, 27	4.1	5.0	3.4	4.2	34.6	36.1	36.6	35.8	77.7	65.1	78.1	73.6	12	13	5	11	0	12	0	
Dec......	23	16	1	3	0	14	17	18	1	3.62	0.60	27	5.5	6.2	4.9	5.5	21.9	27.4	22.7	24.0	76.2	73.9	72.8	74.1	9	11	11	18	6	27	0	
Sums..	151	122	38	72	100	183	138	157	128	54.37	....	......	58.4	64.3	51.6	58.0	470.5	506.5	470.8	482.6	918.5	823.7	912.9	885.0	118	157	90	148	28	131	0	
	Percentages.																								Percentages.							
Means.	13.8	11.1	3.5	7.1	9.1	16.7	12.6	14.3	11.7	.....	....	......	4.9	5.4	4.3	4.9	39.2	42.2	39.2	40.2	76.5	68.6	76.1	73.7	32.3	43.0	24.7	40.5	7.7	35.9	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.19 a. m., 3.19 p. m., and 11.19 p. m., local time.

Correction for instrumental error of barometer used: from 7.19 a. m., January 1, to 11.19 p. m., December 31, inclusive, +.005 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.050; February, 0.050; March, 0.050; April, 0.050; May, 0.050; June, 0.050; July, 0.050; August, 0.050; September, 0.050; October, 0.050; November, 0.050; December, 0.050.

JOHN G. LYNCH,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

NEW ORLEANS, LA.

[Latitude, 29° 58′ N.; longitude, 90° 4′ W. Magnetic variation, 7° E. Elevation of barometer above sea-level, 52 feet. Elevation of exposed thermometer above ground, 45 feet. Elevation of rain-gauge above ground, 84 feet.]

Month.	Barometer (corrected for temperature and instrumental error only). Washington time. 7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Temperature. Washington time. 7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Self-registering thermometers. Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean minimum.	Mean maximum.	Wind. Washington time. 11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Maximum hourly velocity during month. Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.105	30.065	30.101	30.090	30.629	23	29.826	20	.803	53.0	61.3	56.2	56.8	77.0	20	33.5	22	43.5	64.1	49.0	2,056	2,229	2,152	6,437	27	SW.	20
Feb	30.161	30.134	30.176	30.157	30.622	27	29.831	23	.791	59.2	67.8	61.8	62.9	80.0	16	39.5	18	40.5	70.1	55.0	1,625	2,138	1,973	5,736	24	S.	16
Mar	30.023	29.986	30.006	30.005	30.465	1	29.553	24	.912	56.6	67.1	61.4	61.7	80.8	31	44.0	8	36.8	69.4	53.7	1,466	2,071	2,033	5,570	33	E.	24
Apr	29.912	29.897	29.908	29.906	30.301	16	29.443	22	.858	67.9	75.6	70.6	71.4	84.0	24	51.0	3	33.0	77.4	64.7	1,621	2,075	2,046	5,742	26	SE.	21, 22
May	29.980	29.958	29.970	29.969	30.145	24	29.664	20	.481	70.4	79.7	72.9	74.3	88.0	15	56.5	23	31.5	81.2	67.3	1,304	2,248	1,967	5,519	36	NW.	30
June	29.968	29.947	29.952	29.956	30.085	1	29.762	8	.323	78.2	84.6	79.3	80.7	91.8	15	68.4	3	23.4	87.5	74.9	858	1,697	1,631	4,186	28	NW.	23
July	30.050	30.024	30.030	30.035	30.194	23	29.918	12	.276	80.3	88.3	81.9	83.5	94.1	18	74.5	1	19.6	90.3	77.0	847	1,615	1,520	3,982	27	NW.	26
Aug	29.981	29.953	29.967	29.967	30.106	15	29.799	11	.307	79.7	87.7	82.4	83.3	92.5	6	73.9	17	18.6	89.9	76.8	328	1,052	895	2,275	27	NW.	22
Sept	29.983	29.942	29.972	29.966	30.162	27	29.770	22	.392	74.9	85.1	78.3	79.4	90.5	7	63.0	25	27.5	86.0	72.5	929	1,628	1,449	4,006	17	{ N. SW.	24 14
Oct	30.004	29.961	29.995	29.987	30.179	6	29.815	29	.364	71.3	80.5	74.5	75.4	88.7	2	49.8	26	38.9	81.5	68.4	1,368	1,946	1,582	4,896	22	NW.	20
Nov	30.116	30.075	30.109	30.100	30.490	16	29.814	25	.676	59.2	68.8	62.5	63.5	81.0	10	36.8	16	44.2	70.5	55.6	1,792	2,263	1,919	5,974	26	NE.	12
Dec	30.108	30.069	30.101	30.093	30.458	15	29.850	18	.599	56.3	65.2	59.4	60.3	76.0	30	37.0	16	39.0	67.4	52.4	1,657	2,040	1,859	5,556	28	N.	15
Sums	360.391	360.011	360.287	360.231	......	....	......	....	....	807.0	911.7	841.2	853.2	....	....	....	....	...	935.3	767.3	15,851	23,002	21,026	59,879	....	....	....
																					Averages.						
Means	30.033	30.001	30.024	30.019	30.629	*23	29.443	†22	....	67.2	76.0	70.1	71.1	94.1	‡18	33.5	*22	....	77.9	63.9	1,320.9	1,916.8	1,752.2	......	....	....	....

*January. †April. ‡July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	10	11	24	12	11	10	1	14	0	10.63	3.71	19	4.8	6.1	4.7	5.2	45.5	47.2	47.2	46.6	76.6	63.0	73.7	71.1	10	9	12	15	0	0	0	
Feb	21	6	9	24	15	5	1	2	1	1.59	.88	17, 18	6.6	5.8	4.4	5.6	51.9	52.3	53.1	52.4	78.7	60.4	74.9	71.3	8	10	10	7	0	0	0	
Mar	20	11	15	10	10	12	4	11	0	5.01	2.60	24	4.6	4.6	3.9	4.4	48.8	46.5	50.3	48.5	76.4	50.4	68.7	65.2	12	10	9	5	0	0	0	
Apr	15	10	14	15	13	11	1	7	4	14.20	9.22	7, 8	5.1	6.8	5.4	5.8	61.8	60.2	62.2	61.2	60.9	61.8	76.1	72.9	8	11	11	11	0	0	0	
May	18	5	7	25	25	3	4	4	2	5.41	2.41	26	4.1	6.3	3.8	4.6	63.8	62.0	64.6	63.5	80.2	56.2	76.2	70.9	10	16	5	10	0	0	0	
June	3	3	19	12	17	12	15	6	3	12.05	2.68	8, 9	5.4	7.6	4.1	5.7	73.0	72.0	73.2	72.7	84.8	66.6	81.9	77.8	3	19	8	20	0	0	8	
July	10	6	6	12	10	20	16	10	3	3.33	1.25	9	3.1	5.8	2.5	3.8	73.6	69.9	73.4	72.3	80.3	55.8	75.8	70.6	13	16	2	10	0	0	17	
Aug	11	10	11	10	6	10	7	4	24	4.12	2.09	17, 18	2.6	5.7	2.6	3.6	72.5	68.6	72.8	71.3	79.2	54.8	73.2	69.1	11	18	2	10	0	0	16	
Sept	13	10	13	23	8	5	11	3	4	0.25	.23	14	3.9	5.1	2.7	3.9	66.8	64.4	68.5	66.6	76.9	51.4	72.6	67.0	10	17	3	2	0	0	1	
Oct	10	19	15	12	18	12	5	6	1	3.43	1.75	17, 18	4.2	4.7	2.5	3.8	66.6	65.2	67.0	66.3	85.5	61.4	78.5	75.1	12	15	4	8	0	0	0	
Nov	20	18	15	12	18	0	2	0	5	6.36	2.57	11, 12	3.6	5.7	3.5	4.3	51.0	51.6	52.5	51.7	75.9	57.7	72.5	68.7	10	15	5	9	0	0	0	
Dec	25	11	10	18	14	7	2	5	1	3.47	.86	18, 19	5.6	6.6	4.2	5.5	50.4	50.3	51.0	50.6	81.7	61.2	75.5	72.8	9	12	10	12	0	0	0	First frost Dec. 16.
Sums ..	176	120	158	185	160	107	69	72	48	69.85	....	......	53.6	70.8	43.8	56.2	725.2	710.2	735.8	723.7	957.1	700.7	899.6	852.5	116	168	81	119	...	...	87	
	Percentages.																								Percentages.							
Means .	16.1	11.0	14.4	16.9	14.6	9.8	6.8	6.6	4.4	.....	....	......	4.5	5.9	3.6	4.7	60.4	59.2	61.3	60.3	79.8	58.4	75.0	71.1	31.8	46.0	22.2	32.6	...	...	10.1	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.08 a. m., 2.08 p. m., and 10.08 p. m., local time.

Correction for instrumental error of barometer used: From 6.08 a. m., January 1, to 10.08 p. m., December 31, inclusive, —0.004 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.060; February, 0.060; March, 0.060; April, 0.060; May, 0.050; June, 0.050; July, 0.050; August, 0.050; September, 0.050; October, 0.050; November, 0.060; December, 0.060.

M. HERMAN,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

NEWPORT, R. I.

[Latitude, 41° 29′ N.; longitude, 71° 19′ W. Magnetic variation, 10° 15′ W. Elevation of barometer above sea-level, 44 feet. Elevation of exposed thermometer above ground, 19 feet. Elevation of rain-gauge above ground, 41 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°				°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.138	30.096	30.124	30.119	30.524	24	29.430	10	1.094	25.1	30.7	26.9	27.6	46.0	21	3.3	23	42.7	33.8	20.0	2,488	2,814	2,678	7,980	34	W.	22
Feb	30.177	30.150	30.205	30.177	30.738	24	29.536	7	1.202	28.8	33.5	29.2	30.5	47.5	4	13.6	24	33.9	37.0	23.4	2,353	2,852	2,508	7,713	32	W.	12
Mar	29.908	29.827	29.877	29.871	30.436	5	28.844	10	1.592	29.2	36.3	30.4	32.0	53.2	15	8.9	5	44.3	39.8	23.7	2,779	3,202	3,153	9,134	37	NW.	7
Apr.[1]																											
May																											
June																											
July																											
Aug																											
Sept																											
Oct																											
Nov																											
Dec																											
Sums																											
																					Averages.						
Means																											

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[1] Station closed March 31, 1883.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	23	7	6	1	4	16	19	16	1	5.82	1.24	20, 21	7.2	6.6	6.3	6.7	19.5	21.7	19.7	20.3	79.0	69.9	74.3	74.4	4	13	14	15	11	28	0	
Feb	10	3	3	6	3	22	20	16	1	5.72	1.53	7	5.6	6.0	5.1	5.6	22.3	23.7	21.6	22.5	76.0	68.2	73.0	72.4	5	16	7	17	2	27	0	
Mar	11	3	5	1	5	22	18	26	2	8.12	1.21	10	4.2	4.4	4.4	4.3	20.1	22.7	21.1	21.3	68.2	59.2	67.9	65.1	9	15	7	6	4	27	0	
Apr[1]																																
May																																
June																																
July																																
Aug																																
Sept																																
Oct																																
Nov																																
Dec																																
Sums																																
	Percentages.																								Percentages.							
Means																																

[1] Station closed March 31, 1883.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.23 a. m., 3.23 p. m., and 11.23 p. m., local time.
Correction for instrumental error of barometer used: From 7.23 a. m., January 1, to 11.23 p. m., March 31, inclusive, +0.001 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.050; February, 0.050; March, 0.050.

WM. W. McGILLIVRAY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

NEW YORK CITY.

[Latitude, 40° 43′ N.; longitude, 74° 00′ W. Magnetic variation, 7° W. Elevation of barometer above sea-level, 164 feet. Elevation of exposed thermometer above ground, 148 feet. Elevation of rain-gauge above ground, 145 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.030	29.989	30.021	30.013	30.450	24	29.401	10	1.049	25.9	30.5	27.0	27.8	46.0	31	3.5	23	42.5	33.5	21.8	1,459	1,963	1,753	5,175	36	E.	31
Feb	30.093	30.064	30.102	30.086	30.617	2	29.456	7	1.161	29.1	34.5	30.5	31.4	56.0	4	15.0	2	41.0	37.5	25.4	1,585	1,913	1,609	5,577	33	W.	12
Mar ...	29.833	29.743	29.806	29.794	30.307	5	29.071	10	1.236	29.6	39.0	32.8	33.6	60.0	18	9.5	8	50.5	42.2	25.8	1,937	2,628	2,255	6,820	36	W.	7, 12
Apr	29.868	29.823	29.858	29.850	30.310	14	29.473	20	.837	43.3	51.5	45.0	46.6	70.0	18	26.5	1	43.5	54.8	39.7	1,878	1,925	1,697	5,000	26 26	NE. W.	12 27
May ...	29.827	29.788	29.809	29.808	30.232	1	29.352	21	.880	55.6	65.1	56.6	59.1	81.0	8	41.0	1	40.0	68.6	51.1	1,555	1,901	2,018	5,474	31	NW.	8
June ...	29.852	29.817	29.826	29.833	30.391	2	29.433	11	.958	64.3	74.4	66.8	69.5	87.5	6	53.5	3	34.0	78.6	63.5	1,207	1,790	1,644	4,641	27	NE.	27
July ...	29.844	29.798	29.823	29.822	30.091	21	29.564	15	.527	70.1	78.9	71.0	73.3	90.5	4	58.0	9	32.5	81.4	66.3	1,203	1,644	1,678	4,525	32	NW.	2
Aug....	29.897	29.846	29.892	29.878	30.133	15	29.477	2	.656	66.8	77.0	68.7	70.8	87.0	23	59.0	2, 17, 28	28.0	79.1	63.5	1,119	1,852	1,531	4,502	45	E.	2
Sept....	29.943	29.894	29.919	29.919	30.292	10	29.330	24	.962	59.4	68.9	60.9	63.1	81.0	15	46.5	6	34.5	70.8	56.2	1,582	2,020	1,967	5,519	30	NE.	12
Oct.....	30.029	29.967	30.010	30.002	30.481	17	29.225	29	1.256	50.2	50.0	52.0	53.7	81.0	11	36.0	16	45.0	61.2	46.6	1,571	1,895	1,625	5,091	26 26	SE. W.	2 30
Nov	29.998	29.951	29.975	29.975	30.449	17	29.537	11	.912	41.7	49.1	44.1	45.0	68.0	22	8.0	13	60.0	52.1	37.8	1,523	1,793	1,685	5,001	35	W.	16
Dec	29.951	29.906	29.938	29.932	30.524	23	29.245	27	1.279	31.2	36.8	33.1	33.7	54.0	8	4.0	23	50.0	40.5	26.9	1,699	1,967	1,709	5,375	35	W.	28
Sums..	359.165	358.586	358.979	358.911	......	...	......	...	......	570.1	664.7	588.0	607.6	.....	...	.....	....	.....	700.3	524.6	17,768	23,291	21,171	62,700	...	....	.....
																					Averages.						
Means.	29.930	29.882	29.915	29.909	30.617	*2	29.071	†10	......	47.5	55.4	49.0	50.6	90.5	‡4	3.5	§23	.....	58.4	43.7	1,480.7	1,940.9	1,764.2	......	...	....	.....

* February. † March. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).							.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
	North	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.					
1883.										In.	In.						°	°	°	°												
Jan......	18	23	3	3	5	10	22	7	7	3.22	.90	20, 21	7.2	6.8	6.7	6.9	21.4	21.7	20.9	21.3	83.3	70.4	78.3	77.3	3	13	15	20	12	26	0	
Feb......	4	9	7	2	7	17	28	6	4	4.58	1.18	10, 11	6.0	5.9	4.6	5.5	24.5	27.0	24.9	25.5	83.1	74.2	79.8	79.0	6	13	9	13	4	24	0	
Mar	8	12	7	5	4	16	17	20	4	1.63	.65	30	4.7	4.8	2.8	4.1	22.1	25.9	22.8	23.6	73.7	62.2	68.0	68.0	12	15	4	5	2	24	0	
Apr	7	13	6	9	7	14	11	12	11	3.82	1.03	16, 17	6.0	5.6	5.1	5.6	35.1	37.4	35.1	35.9	74.6	63.4	70.8	69.6	7	15	8	12	0	2	0	
May	12	11	8	5	16	10	15	8	8	3.03	2.31	21, 22	4.2	5.1	4.7	4.7	46.3	47.4	46.3	46.7	73.5	56.3	71.0	66.9	11	12	8	9	0	0	0	
June.....	5	6	8	10	13	22	8	8	10	4.00	1.20	18, 19	4.4	5.4	4.7	4.8	60.7	61.0	60.1	60.6	80.4	65.5	80.1	75.3	9	12	9	12	0	0	0	
July	7	5	0	2	7	36	15	13	8	3.37	1.05	8, 9	3.7	5.2	3.0	4.0	61.7	60.7	63.7	62.0	75.7	56.0	78.5	70.1	10	16	5	16	0	0	1	
Aug	3	17	6	6	2	21	13	14	11	2.29	1.14	2	4.0	4.6	2.2	3.6	56.1	54.8	57.0	56.0	70.0	49.2	67.3	62.2	16	12	3	6	0	0	0	
Sept	10	15	10	5	12	13	12	5	8	3.57	.98	12, 13	5.2	5.9	4.7	5.3	52.5	52.0	53.5	52.7	78.7	57.7	77.7	71.4	9	12	9	13	0	0	0	
Oct	9	20	12	7	11	8	9	6	11	4.27	1.38	23, 24	5.3	5.6	3.7	4.9	42.8	42.8	43.0	42.9	76.6	58.1	72.9	69.2	12	9	10	13	0	0	0	
Nov	4	6	1	8	7	21	17	16	10	1.65	.78	26, 27	4.8	5.2	3.3	4.4	33.4	34.7	36.0	34.7	73.2	60.0	73.9	69.0	12	11	7	10	0	8	0	
Dec......	7	14	0	6	6	17	16	16	11	3.40	.83	23, 24	5.6	5.1	5.3	5.3	25.7	25.9	26.2	25.9	80.0	66.4	76.5	74.3	6	16	9	12	4	21	0	
Sums ..	89	151	68	68	97	205	183	131	103	38.83	...	......	61.1	65.2	50.8	59.1	482.3	491.3	489.5	487.8	922.8	739.4	894.8	852.3	113	156	96	141	22	105	1	
	Percentages.																								Percentages.							
Means .	8.1	13.8	6.2	6.2	8.9	18.7	16.7	11.9	9.4	....	...	......	5.1	5.4	4.2	4.9	40.2	40.9	40.8	40.6	76.9	61.6	74.6	71.0	31.0	42.7	26.3	38.6	6.0	28.8	0.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m , Washington time, correspond with 7.12 a. m , 3.12 p. m., and 11.12 p. m., local time.

Correction for instrumental error of barometer used: From 7.12 a. m., January 1, to 11.12 p. m., December 31, inclusive, +0.009 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.190; February, 0.190; March, 0.180; April, 0.180; May, 0.180; June, 0.170; July, 0.170; August, 0.170; September, 0.170; October, 0.180; November, 0.180; December, 0.190.

H. J. PENROD,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76—*Meteorological summary for the year ending December 31, 1883*—Continued.

NORFOLK, VA.

[Latitude, 36° 51′ N.; longitude, 76° 17′ W. Magnetic variation, 2° 30′ W. Elevation of barometer above sea-level, 30 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 52 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.183	30.139	30.165	30.162	30.601	24	29.423	9	1.178	36.3	42.6	38.4	39.1	65.0	21	19.0	12	46.0	44.8	32.5	1,549	1,734	1,587	4,870	23	NE.	10
Feb.[1]	30.293	30.244	30.270	30.269	30.719	2	29.818	7	.901	42.7	52.4	45.2	46.8	76.0	17	30.0	27	46.0	55.2	38.5	1,668	2,171	1,614	5,483	32	N.	17
Mar	30.020	29.933	29.988	29.980	30.494	5	29.365	10	1.129	39.7	50.9	43.7	44.8	72.0	19	25.0	8	47.0	53.9	35.8	1,855	2,428	2,248	6,531	28	N.	15
Apr	30.003	29.951	30.001	29.985	30.392	14	29.474	23	.918	52.9	61.2	53.3	55.8	80.0	6	37.0	1	43.0	63.5	47.6	1,651	2,813	2,116	6,060	28	NE.	17
May	29.984	29.922	29.954	29.953	30.286	18	29.338	21	.948	63.0	72.4	63.5	66.3	89.0	29	44.0	1	45.0	74.5	57.6	1,636	2,299	1,975	5,910	23	SW.	14
June	29.994	29.949	29.978	29.974	30.367	2	29.718	19	.649	75.1	82.6	72.9	76.9	95.3	19	58.5	15, 16	36.8	84.8	68.7	1,885	2,034	1,805	5,224	24	SW.	18
July	30.024	29.976	30.005	30.002	30.242	21	29.701	24	.541	77.4	85.7	75.7	79.6	98.2	22	64.5	2	33.7	87.9	71.1	1,322	1,865	1,658	4,845	23	SW.	6
Aug	30.010	29.975	30.008	29.998	30.175	14	29.719	2	.456	74.4	81.2	73.1	76.2	94.5	20	61.6	31	32.9	82.4	68.9	1,196	2,065	1,684	4,945	20	NE.	12
Sept	30.035	29.990	30.006	30.010	30.285	9	29.683	24	.602	67.7	75.2	68.5	70.5	85.0	16	55.3	27	29.7	76.4	63.8	1,613	2,132	1,867	5,612	26	NE.	11
Oct	30.121	30.079	30.099	30.100	30.513	17	29.593	29	.920	59.7	65.7	61.2	62.2	86.6	2	47.1	25	39.5	68.4	56.7	1,729	2,402	1,819	5,950	28	NW.	3
Nov	30.190	30.132	30.158	30.160	30.617	17	29.807	11	.810	49.0	59.8	52.3	53.7	79.2	10	27.5	16	51.7	62.2	45.0	1,653	2,218	1,689	5,560	27	N.	27
Dec	30.139	30.084	30.122	30.115	30.502	23	29.610	27	.892	42.3	51.6	45.4	46.4	68.9	8	24.0	16	44.9	58.9	38.8	972	1,496	1,027	3,495	20	N., SW.	15, 18
Sums	360.996	360.874	360.754	360.708	......	....	......	....	.....	680.2	781.3	693.2	718.3	....	....	....	.....	......	807.9	625.0	18,229	25,157	21,119	64,505	....	....	......
																					Averages.						
Means	30.083	30.031	30.063	30.059	30.719	*2	29.338	†21	.....	56.7	65.1	57.8	59.9	98.2	‡22	19.0	§12	......	67.8	52.1	1,519.1	2,096.4	1,759.9	......	....	....	......

[1] One 7 a. m. observation missed.

* February. † May. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	25	21	2	4	9	12	6	12	2	6.91	1.57	6	4.7	6.6	5.6	5.6	32.0	33.8	33.6	33.1	84.6	73.2	83.7	80.5	9	12	10	17	0	12	0	
Feb.[1] ..	17	16	11	2	8	14	6	5	4	8.84	1.00	7, 8	5.1	6.2	4.3	5.2	35.4	39.2	38.6	37.7	76.4	62.8	78.2	72.5	9	12	6	9	0	1	0	
Mar ...	14	18	10	6	10	11	15	8	1	8.03	1.16	9, 10	4.6	4.7	4.1	4.5	30.9	31.6	33.3	31.9	71.0	50.4	68.3	63.2	12	13	6	12	0	10	0	
Apr ...	18	18	9	10	9	17	4	1	4	9.76	5.19	16, 17	5.4	6.7	5.8	5.8	47.3	46.3	46.7	46.8	81.9	60.7	78.9	73.8	7	14	9	9	0	0	0	
May ...	13	14	8	6	6	23	9	6	8	4.09	1.01	15	3.9	4.0	4.0	4.0	54.5	53.7	56.4	54.9	75.3	54.9	78.7	69.6	13	13	5	8	0	0	0	
June...	3	8	15	15	7	29	6	3	4	6.52	3.77	13, 14	4.5	4.9	2.5	4.0	67.0	64.7	67.5	66.4	76.4	56.0	83.6	72.0	9	19	2	11	0	0	4	
July ...	8	17	4	8	15	23	14	2	2	3.87	.93	9, 10	3.5	4.5	2.9	3.6	69.0	67.4	69.4	68.6	76.1	55.9	81.7	71.2	15	14	2	15	0	0	11	
Aug ...	9	32	13	5	12	13	3	5	1	2.91	1.45	15, 16	4.6	4.7	2.5	3.9	67.3	64.7	66.5	66.2	79.3	58.8	80.3	72.8	9	19	3	8	0	0	6	
Sept ...	6	28	6	6	13	18	5	1	7	6.63	2.66	11	6.0	6.2	4.5	5.6	63.2	63.0	63.0	63.1	86.2	67.6	83.6	79.1	9	8	13	8	0	0	0	
Oct	21	31	9	5	8	6	5	3	5	3.79	1.52	22, 23	5.1	6.7	5.9	5.9	54.7	55.6	55.5	55.3	84.2	71.3	82.3	79.3	7	12	12	16	0	0	0	
Nov ...	24	11	4	0	13	23	2	8	5	.55	.42	26	3.9	4.2	3.0	3.7	40.0	43.2	43.4	42.2	73.2	56.3	72.2	67.2	18	7	5	4	0	2	0	
Dec	16	12	2	5	8	21	9	6	14	2.40	.75	23, 24	4.2	4.3	4.5	4.3	35.7	38.3	36.8	36.9	77.7	62.8	72.9	71.1	14	10	7	12	0	4	0	
Sums	174	226	93	72	118	210	84	60	57	54.80	......	......	55.5	63.7	49.1	56.1	597.0	601.5	610.7	603.1	942.3	730.7	944.4	872.3	131	158	80	129	0	29	21	
	Percentages.																								Percentages.							
Means.	15.9	20.6	8.5	6.6	10.8	19.2	7.7	5.5	5.2	......	......	......	4.6	5.3	4.1	4.7	49.8	50.1	50.9	50.3	78.5	60.9	78.7	72.7	36.0	42.0	22.0	35.3	0	8.0	5.8	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.08 a. m., 3.08 p. m., and 11.08 p. m., local time.

Correction for instrumental error of barometer used: From 7.08 a. m., January 1, 1883, to 11.08 p. m., December 31, 1883, inclusive, +0.012 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.030; February, 0.030; March, 0.030; April, 0.030; May, 0.030; June, 0.030; July, 0.030; August, 0.030; September, 0.030; October, 0.030; November, 0.030; December, 0.030.

WILLIAM DAVIS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76—*Meteorological summary for the year ending December* 31, 1883—Continued.

NORFOLK, VA.

[Latitude, 36° 51′ N.; longitude, 76° 17′ W. Magnetic variation, 2° 30′ W. Elevation of barometer above sea-level, 30 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 52 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.												Wind.						
	Washington time.									Washington time.				Self-registering thermometers.								Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30. 183	30. 139	30. 165	30. 162	30. 601	24	29. 423	9	1. 178	36. 3	42. 6	38. 4	39. 1	65. 0	21	19. 0	12	46. 0	44. 8	32. 5	1, 549	1, 734	1, 587	4, 870	23	NE.	10
Feb.[1]	30. 293	30. 244	30. 270	30. 269	30. 719	2	29. 818	7	. 901	42. 7	52. 4	45. 2	46. 8	76. 0	17	30. 0	27	46. 0	55. 2	38. 5	1, 668	2, 171	1, 644	5, 483	32	N.	17
Mar	30. 020	29. 933	29. 988	29. 980	30. 494	5	29. 365	10	1. 129	39. 7	50. 9	43. 7	44. 8	72. 0	19	25. 0	8	47. 0	53. 9	35. 8	1, 855	2, 428	2, 248	6, 531	28	N.	15
Apr	30. 003	29. 951	30. 001	29. 985	30. 392	14	29. 474	23	. 918	52. 9	61. 2	53. 3	55. 8	80. 0	6	37. 0	1	43. 0	63. 5	47. 6	1, 651	2, 313	2, 116	6, 080	28	NE.	17
May	29. 984	29. 922	29. 954	29. 953	30. 286	18	29. 338	21	. 948	63. 0	72. 4	63. 5	66. 3	89. 0	29	44. 0	1	45. 0	74. 5	57. 6	1, 636	2, 299	1, 975	5, 910	23	SW.	14
June	29. 994	29. 949	29. 978	29. 974	30. 367	2	29. 718	19	. 649	75. 1	82. 6	72. 9	76. 9	95. 3	19	58. 5	15, 16	36. 8	84. 8	68. 7	1, 385	2, 034	1, 805	5, 224	24	SW.	18
July	30. 024	29. 976	30. 005	30. 002	30. 242	21	29. 701	24	. 541	77. 4	85. 7	75. 7	79. 6	98. 2	22	64. 5	2	33. 7	87. 9	71. 1	1, 322	1, 865	1, 658	4, 845	23	SW.	6
Aug	30. 010	29. 975	30. 008	29. 998	30. 175	14	29. 719	2	. 456	74. 4	81. 2	73. 1	76. 2	94. 5	20	61. 6	31	32. 9	82. 4	68. 9	1, 196	2, 065	1, 684	4, 945	20	NE.	12
Sept	30. 035	29. 990	30. 006	30. 010	30. 285	9	29. 683	24	. 602	67. 7	75. 2	68. 5	70. 5	85. 0	16	55. 3	27	29. 7	76. 4	63. 8	1, 613	2, 132	1, 867	5, 612	26	NE.	11
Oct.	30. 121	30. 079	30. 099	30. 100	30. 513	17	29. 593	29	. 920	59. 7	65. 7	61. 2	62. 2	86. 6	2	47. 1	25	39. 5	68. 4	56. 7	1, 729	2, 402	1, 819	5, 950	28	NW.	3
Nov	30. 190	30. 132	30. 158	30. 160	30. 617	17	29. 807	11	. 810	49. 0	59. 8	52. 3	53. 7	79. 2	10	27. 5	16	51. 7	62. 2	45. 0	1, 653	2, 218	1, 689	5, 560	27	N.	27
Dec	30. 139	30. 084	30. 122	30. 115	30. 502	23	29. 610	27	. 892	42. 3	51. 6	45. 4	46. 4	68. 9	8	24. 0	16	44. 9	58. 9	38. 8	972	1, 496	1, 027	3, 495	20	N., SW.	15, 18
Sums...	360. 996	360. 874	360. 754	360. 708	......	....	......	....	.....	680. 2	781. 3	693. 2	718. 3	....	....	.....	.....	......	807. 9	625. 0	18, 229	25, 157	21, 119	64, 505	....	....	......
																					Averages.						
Means..	30. 083	30. 081	30. 063	30. 059	30. 719	*2	29. 338	†21	.....	56. 7	65. 1	57. 8	59. 9	98. 2	‡22	19. 0	§12	......	67. 8	52. 1	1, 519. 1	2, 096. 4	1, 759. 9	......	....	....	......

[1] One 7 a. m. observation missed.

* February. † May. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	25	21	2	4	9	12	6	12	2	6.91	1.57	6	4.7	6.6	5.6	5.6	32.0	33.8	33.6	33.1	84.6	73.2	83.7	80.5	9	12	10	17	0	12	0	
Feb.[1]	17	16	11	2	8	14	6	5	4	3.84	1.00	7, 8	5.1	6.2	4.3	5.2	35.4	39.2	38.6	37.7	76.4	62.8	78.2	72.5	9	12	6	9	0	1	0	
Mar	14	18	10	6	10	11	15	8	1	3.03	1.16	9, 10	4.6	4.7	4.1	4.5	30.9	31.6	33.3	31.9	71.0	50.4	68.3	63.2	12	13	6	12	0	10	0	
Apr	18	18	9	10	9	17	4	1	4	9.76	5.19	16, 17	5.4	6.7	5.3	5.8	47.3	46.3	46.7	46.8	81.9	60.7	78.9	73.8	7	14	9	9	0	0	0	
May	13	14	8	6	6	23	9	6	8	4.09	1.01	15	3.9	4.0	4.0	4.0	54.5	53.7	56.4	54.9	75.3	54.9	78.7	69.6	13	13	5	8	0	0	0	
June	3	8	15	15	7	29	6	3	4	6.52	3.77	13, 14	4.5	4.9	2.5	4.0	67.0	64.7	67.5	66.4	76.4	56.0	83.6	72.0	9	19	2	11	0	0	4	
July	8	17	4	8	16	23	14	2	2	3.87	.93	9, 10	3.5	4.5	2.9	3.6	69.0	67.4	69.4	68.6	76.1	55.9	81.7	71.2	15	14	2	15	0	0	11	
Aug	9	32	13	5	12	13	3	5	1	2.91	1.45	15, 16	4.6	4.7	2.5	3.9	67.3	64.7	66.5	66.2	79.3	58.8	80.3	72.8	9	19	3	8	0	0	6	
Sept	6	28	6	6	13	18	5	1	7	6.63	2.66	11	6.0	6.2	4.5	5.6	63.2	63.0	63.0	63.1	86.2	67.6	83.6	79.1	9	8	13	8	0	0	0	
Oct	21	31	9	5	8	6	5	3	5	3.79	1.52	22, 23	5.1	6.7	5.9	5.9	54.7	55.6	55.5	55.3	84.2	71.3	82.3	79.3	7	12	12	16	0	0	0	
Nov	24	11	4	0	13	23	2	8	5	.55	.42	26	3.9	4.2	3.0	3.7	40.0	43.2	43.4	42.2	73.2	56.3	72.2	67.2	18	7	5	4	0	2	0	
Dec	16	12	2	5	8	21	9	6	14	2.40	.75	23, 24	4.2	4.3	4.5	4.3	35.7	38.3	36.8	36.9	77.7	62.8	72.9	71.1	14	10	7	12	0	4	0	
Sums.	174	226	93	72	118	210	84	60	57	54.30	......	......	55.5	63.7	49.1	56.1	597.0	601.5	610.7	603.1	942.3	730.7	944.4	872.3	131	158	80	129	0	29	21	
	Percentages.																								Percentages.							
Means.	15.9	20.6	8.5	6.6	10.8	19.2	7.7	5.5	5.2	......	......	......	4.6	5.3	4.1	4.7	49.8	50.1	50.9	50.3	78.5	60.9	78.7	72.7	36.0	42.0	22.0	35.3	0	8.0	5.8	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.03 a. m., 3.03 p. m., and 11.03 p. m., local time.

Correction for instrumental error of barometer used: From 7.03 a. m., January 1, 1883, to 11.03 p. m., December 31, 1883, inclusive, +0.012 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.030; February, 0.030; March, 0.030; April, 0.030; May, 0.030; June, 0.030; July, 0.030; August, 0.030; September, 0.030; October, 0.030; November, 0.030; December, 0.030.

WILLIAM DAVIS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

NORTH PLATTE, NEBR.

[Latitude, 41° 8′ N.; longitude, 100° 45′ W. Magnetic variation, 14° E. Elevation of barometer above sea-level, 2,841 feet. Elevation of exposed thermometer above ground, 21 feet. Elevation of rain-gauge above ground, 34 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	27.102	27.061	27.120	27.094	27.429	19	26.490	12	.939	8.8	21.8	13.9	14.8	50.3	9	—26	19	76.3	27.1	4.0	1,973	2,339	2,450	6,762	36	NW.	9
Feb	27.243	27.194	27.237	27.225	27.672	26	26.433	15	1.239	10.3	25.0	15.1	16.8	52.3	28	—29	4	81.3	29.5	5.2	1,924	2,120	1,780	5,824	36	N.	15
Mar	27.114	27.085	27.103	27.101	27.712	2	26.611	17	1.101	28.8	45.2	34.8	36.3	71.3	17	12	18	59.3	51.0	2.56	1,689	2,776	2,515	6,980	34	W.	16
Apr	26.921	26.906	26.919	26.915	27.583	24	26.012	21	1.571	39.8	56.5	46.9	47.6	79.3	20	21	2	58.3	60.7	36.8	2,649	3,195	3,412	9,256	52	SE.	20 21
May	26.987	26.956	26.994	26.979	27.355	10	26.283	17	1.072	47.0	60.7	53.0	53.6	87.3	6	31	3	56.3	65.4	43.9	2,901	3,321	3,266	9,488	40	E.	13
June[1] ..	27.056	27.048	27.058	27.054	27.222	24	26.716	10	.506	59.6	74.9	65.5	66.7	93.3	30	46	2	47.3	78.2	56.8	2,136	2,592	2,588	7,316	90	SW.	16
July	27.101	27.086	27.085	27.091	27.376	17	26.737	15	.639	65.3	81.4	71.9	72.9	95.3	8	54	17	41.3	84.9	62.7	2,243	2,297	2,599	7,139	37	NW.	4
Aug	27.172	27.149	27.153	27.158	27.331	28	26.733	21	.598	62.4	78.5	68.2	69.7	92.3	21 29	48	22	44.3	80.8	59.9	1,666	2,070	2,264	6,000	44	E.	10
Sept.[2] ...	27.187	27.151	27.172	27.170	27.494	20	26.855	13	.639	52.0	69.5	58.6	60.0	91.3	6	36	21	55.3	72.3	50.0	2,017	2,758	2,590	7,365	40	NW.	21
Oct	27.091	27.068	27.105	27.086	27.550	31	26.585	17	.965	39.1	51.5	43.5	44.7	83.3	7	29	25	54.3	53.5	37.0	2,050	2,711	2,698	7,462	38	S.	7
Nov	27.086	27.044	27.071	27.067	27.610	11	26.558	25	1.052	29.3	49.6	35.1	38.0	67.0	2	12	14	55.0	52.3	27.4	1,261	2,033	1,810	5,104	32	N.	13
Dec.[1]	27.102	27.095	27.135	27.111	27.605	14	26.470	26	1.135	24.1	37.8	26.5	29.5	59.0	3	— 5.5	31	64.5	41.2	20.2	1,211	1,742	1,733	4,686	36	NW., W.	6, 7
Sums..	325.162	324.838	325.152	325.051	......	....	......	....	......	466.0	652.4	533.0	550.6	....	....	......	..	....	696.9	429.5	23,729	29,954	29,699	83,382	....	....	....
																					Averages.						
Means.	27.097	27.070	27.096	27.088	27.712	*2	26.012	†21	......	38.8	54.4	44.4	45.9	95.3	‡8	—29	§4	....	58.1	35.8	1,977.4	2,496.2	2,474.9	....	....	....	....

[1] Two 7 a. m. observations missed.
[2] One 7 a. m. observation missed.
* March.
† April.
‡ July.
§ February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 3 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	7	8	5	9	5	8	21	12	18	1.20	0.80	17, 18	4.2	4.8	3.8	4.3	2.4	11.2	7.3	7.0	74.9	64.0	74.8	71.2	11	14	6	11	20	31	0	
Feb	3	5	3	2	7	13	25	18	8	1.38	0.60	1	3.1	4.3	2.5	3.3	5.0	16.3	9.3	10.2	75.8	69.9	77.5	74.4	15	9	4	6	13	27	0	
Mar	5	5	10	13	6	6	11	24	13	0.47	0.31	31	5.2	5.1	3.7	4.7	22.2	25.9	24.8	24.3	75.9	51.1	67.5	64.8	14	7	10	7	1	27	0	
Apr	10	17	8	7	8	3	8	15	14	3.11	1.29	21	5.8	5.7	4.9	5.5	32.8	34.4	36.6	34.6	78.1	47.5	69.1	64.9	7	14	9	16	0	7	0	
May	8	7	14	15	6	5	17	18	3	4.07	1.02	8, 9	6.2	6.3	5.2	5.9	41.1	43.7	43.5	42.8	80.4	57.6	72.0	70.0	6	15	10	15	0	1	0	
June[1]	6	7	11	19	7	5	10	10	13	7.49	2.96	3, 4	4.4	4.4	2.6	3.8	54.5	56.0	57.5	56.0	83.5	53.1	76.3	71.0	11	16	1	11	0	0	2	
July	7	7	18	23	5	4	9	10	10	1.38	0.57	4, 5	4.7	3.6	3.9	4.1	58.4	57.7	59.6	58.6	79.4	47.3	67.0	64.6	11	17	3	11	0	0	10	
Aug	2	3	13	30	14	5	3	7	16	4.51	1.42	14	4.1	3.5	3.4	3.7	57.2	60.4	59.9	59.2	83.6	57.4	75.6	72.2	16	10	5	14	0	0	2	
Sept[2]	7	10	14	19	8	0	14	10	7	1.08	0.69	14	5.6	3.0	3.2	3.9	46.4	49.6	49.0	48.3	81.8	51.3	71.4	68.2	12	13	4	6	0	0	1	
Oct	10	5	11	19	14	5	8	13	8	3.47	1.10	23	5.8	6.0	4.1	5.3	34.7	37.0	37.7	36.5	84.4	62.9	81.2	76.2	9	12	10	16	0	4	0	
Nov	8	4	4	11	9	12	8	16	18	0.42	0.42	4, 5	2.7	4.1	2.0	2.9	21.6	25.8	26.2	24.5	73.3	41.9	70.2	61.8	14	14	2	2	0	22	0	
Dec[1]	6	10	3	2	6	3	20	9	34	1.43	0.95	5, 6	4.1	5.2	4.3	4.5	18.4	26.1	20.6	21.7	78.4	64.9	78.8	74.0	12	10	7	11	6	30	0	
Sums ..	79	88	114	169	95	69	154	162	162	30.01	....	......	55.9	56.0	43.6	51.9	394.7	444.1	432.0	423.7	949.5	668.9	881.4	833.3	138	151	71	126	40	149	15	
	Percentages.																								Percentages.							
Means.	7.2	8.1	10.4	15.5	8.7	6.3	14.1	14.8	14.8	.....	....	......	4.7	4.7	3.6	4.3	32.9	37.0	36.0	35.3	79.1	55.7	73.4	69.4	38.3	41.9	19.7	34.6	11.0	40.8	4.1	

[1] Two 7 a. m. observations missed.

[2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.24 a. m., 1.24 p. m., and 9.24 p. m., local time.
Correction for instrumental error of barometer used: From 5.24 a. m., January 1, to 9.24 p. m., December 31, inclusive, —.010 inch.
The barometric observations may be reduced to sea-level by adding the following constants to the various months: January, 3.120; February, 3.100; March, 3.000; April, 2.900; May, 2.870; June, 2.800; July, 2.800; August, 2.800; September, 2.880; October, 2.960; November, 3.080; December, 3.160.

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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

OLYMPIA, WASH.

[Latitude, 47° 3′ N.; longitude, 122° 53′ W. Magnetic variation, 22° 0′ E. Elevation of barometer above sea-level, 36 feet. Elevation of exposed thermometer above ground, 23 feet. Elevation of rain-gauge above ground, 39 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°	°	°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.131	30.117	30.120	30.123	30.622	19	29.421	25	1.201	34.0	37.4	36.4	35.9	50.0	5, 6, 9	9.0	19	41.0	41.3	31.3	877	1,210	1,111	3,198	25	W.	11
Feb	30.165	30.189	30.168	30.174	30.705	4	29.352	12	1.353	29.8	36.3	34.6	33.6	57.0	27	8.0	4	49.0	41.3	27.3	318	423	691	1,432	20	SW.	22
Mar	30.016	30.023	29.987	30.009	30.378	15	29.286	28	1.092	39.4	50.4	47.9	45.9	66.0	14, 21	32.0	{ 9, 12 18, 31 }	34.0	56.8	37.5	140	306	516	962	18	SW.	28
Apr	29.951	29.939	29.927	29.939	30.326	23	29.590	19	.736	41.7	50.5	48.1	46.8	73.0	29	32.0	23	41.0	55.6	39.9	456	755	886	2,097	24	W.	22
May	30.028	30.000	29.984	30.004	30.357	26	29.607	12	.750	44.1	59.4	56.4	53.3	80.0	29	38.0	31	42.0	65.8	43.0	172	384	777	1,408	18	W.	12
June	30.097	30.055	30.042	30.065	30.410	6	29.841	12	.569	47.2	67.0	64.0	59.4	83.0	12	38.0	1	45.0	73.0	45.6	383	527	1,106	2,016	16	S.	1
July	30.053	30.072	30.017	30.047	30.246	23	29.780	9	.466	50.1	67.9	66.6	61.5	90.0	7	41.0	1	49.0	76.1	48.2	178	143	405	[1]726	14	W.	18
Aug	30.076	30.059	30.043	30.059	30.286	18	29.824	8	.462	56.4	64.8	62.7	61.3	78.0	2, 3	46.0	31	32.0	71.3	55.1	339	473	559	1,371	16	SW.	16
Sept[2]	29.985	29.985	29.960	29.977	30.278	19	29.615	29	.663	50.2	62.3	57.3	56.6	77.0	20	38.0	20	39.0	67.0	48.1	184	414	516	1,064	15	SW.	12
Oct	29.969	29.975	29.965	29.970	30.328	30	29.322	27	1.006	45.2	52.6	48.3	48.7	64.0	1	33.0	23	31.0	57.3	42.9	588	533	918	2,039	22	SW.	27
Nov	30.046	30.061	30.049	30.052	30.441	11	29.451	26	.990	44.8	47.6	45.2	45.7	57.0	10	29.0	25	28.0	50.2	41.9	861	982	978	2,821	28	SW.	21
Dec	30.050	30.046	30.046	30.047	30.481	31	29.269	26	1.212	37.5	41.7	40.2	39.8	56.0	1	24.0	31	32.0	45.9	35.4	472	593	664	1,738	28	S.	26
Sums ..	360.567	360.521	360.308	360.466	......	....	......	....	......	519.9	637.9	607.7	588.5	....	....	....	....	....	701.1	496.2	4,918	6,743	9,127	20,872	....	....	....
																					Averages.						
Means.	30.047	30.043	30.028	30.039	30.705	*4	29.269	†26	......	43.3	53.2	50.6	49.0	90.0	*7	8.0	*4	....	58.4	41.4	409.8	561.9	760.6	......	....	....	....

[1] For 30 days.

[2] One 7 a. m. observation missed.

* February.

† December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	5	5	0	0	48	10	2	3	20	5.68	1.10	24, 25	7.3	8.6	7.1	7.7	29.7	31.4	31.6	30.9	84.4	78.7	82.9	82.0	3	8	20	20	2	9	0	
Feb	6	8	1	0	15	5	1	0	48	3.18	1.27	12	5.7	6.1	4.7	5.5	24.4	29.4	29.1	27.6	81.5	76.6	79.8	79.3	8	9	11	11	4	19	0	Zodiacal light on 8th.
Mar	17	1	0	0	9	4	2	2	58	2.99	1.68	27	4.9	5.7	4.3	5.0	36.4	42.5	41.5	40.1	89.0	75.1	79.0	81.0	11	12	6	7	0	0	0	
Apr	10	1	0	0	27	9	5	3	35	10.78	1.70	10, 11	6.8	8.0	6.4	7.1	38.7	41.5	43.7	42.3	89.3	80.5	85.5	85.1	4	16	16	20	0	0	0	Last frost 24th.
May	20	3	0	0	17	8	9	8	28	2.55	.52	22, 23	6.2	5.9	5.9	6.0	40.5	49.8	47.7	45.0	87.4	71.6	74.1	77.7	7	11	13	12	0	0	0	
June	30	0	0	1	5	18	17	6	13	.21	.20	3	4.7	5.0	4.3	4.7	39.3	49.4	46.0	44.9	74.7	53.7	52.9	60.4	10	11	9	2	0	0	0	
July	21	1	0	0	2	2	7	1	59	(1)	(1)	18	1.9	2.0	1.5	1.8	40.4	49.6	46.3	45.4	69.7	52.8	49.1	57.2	21	9	1	0	0	0	0	
Aug	14	0	0	1	4	9	8	3	54	.01	.01	3	4.0	4.0	4.1	4.0	49.5	48.7	47.6	48.6	77.4	57.9	58.1	64.5	13	11	7	1	0	0	0	
Sept[2]	5	0	0	0	18	6	3	5	53	2.24	1.40	8, 9	3.3	4.2	3.3	3.6	47.8	50.9	51.7	50.1	91.4	67.4	81.7	80.2	15	7	7	9	0	0	0	
Oct	10	1	0	0	21	10	1	1	49	3.73	1.08	25, 26	6.6	8.1	3.9	6.2	42.6	44.8	43.6	43.7	90.6	75.2	84.1	83.3	4	15	12	15	0	0	0	
Nov	3	0	0	0	39	10	3	2	83	5.10	1.34	25, 26	8.1	9.5	8.5	8.7	41.0	41.1	41.0	41.0	88.5	78.5	85.4	84.1	0	8	22	19	0	1	0	First frost 18th; snow 21st.
Dec	2	1	0	0	25	10	2	2	51	5.14	1.26	26, 27	6.0	8.4	6.2	6.9	33.9	35.4	36.6	35.3	86.9	78.7	87.2	84.3	3	14	14	18	0	7	0	
Sums	143	21	1	2	230	101	60	36	501	41.61	....	.....	65.5	75.5	60.2	67.2	464.2	517.5	506.4	495.9	1,010.8	846.7	899.8	919.1	99	125	140	134	6	36	0	
	Percentages.																								Percentages.							
Means	13.1	1.9	0.1	0.2	21.0	9.2	5.5	3.3	45.8	....	....	......	5.5	6.3	5.0	5.6	38.7	43.1	42.2	41.3	84.2	70.6	75.0	76.0	27.2	34.3	38.5	36.8	1.6	9.9	0.0	

[1] Inappreciable. [2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 3.56 a. m., 11.56 a. m., and 7.56 p. m., local time.

Correction for instrumental error of barometer used: From 3.56 a. m., January 1, to 7.56 p. m., December 31, inclusive, +.020 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.040; February, 0.040; March, 0.040; April, 0.040; May, 0.040; June, 0.040; July, 0.040; August, 0.040; September, 0.040; October, 0.040; November, 0.040; December, 0.040.

JNO. DASCOMB,
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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

OMAHA, NEBR.

[Latitude, 41° 16′ N.; longitude, 95° 56′ W. Magnetic variation, 11° E. Elevation of barometer above sea-level, 1,113 feet. Elevation of exposed thermometer above ground, 58 feet. Elevation of rain-gauge above ground, 78 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 p. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28.994	28.949	29.002	28.982	29.393	23	28.223	12	1.170	6.8	16.7	12.2	11.9	46.3	12	—22.1	19	68.4	21.0	0.2	1,934	1,975	1,949	5,858	36	NW.	9, 10
Feb	29.101	29.078	29.090	29.090	29.611	17	28.252	15	1.359	16.5	25.7	22.9	21.7	57.2	28	—24.9	4	82.1	29.7	10.9	1,633	1,749	1,752	5,134	24	NW.	16
Mar	28.926	28.918	28.936	28.927	29.502	3	28.312	17	1.190	29.7	39.6	34.6	34.6	71.0	17	3.0	19	68.0	45.0	24.5	2,058	2,271	2,136	6,465	22	N., NW.	15, 18
Apr	28.694	28.675	28.702	28.690	29.262	24	28.052	22	1.210	46.6	61.2	52.9	53.6	88.2	13	32.0	1	56.2	65.7	42.7	2,229	2,947	2,839	8,015	35	NW.	10
May	28.760	28.748	28.737	28.748	29.179	11	28.065	17	1.114	52.0	63.1	56.9	57.3	87.2	6	37.8	5	49.4	66.8	48.6	1,805	2,501	2,320	6,626	36	SW.	6
June	28.810	28.785	28.778	28.791	28.980	13	28.453	11	.527	63.2	75.0	69.1	69.1	95.0	30	44.6	3	50.4	79.1	59.7	533	965	757	2,255	38	SE.	1
July	28.848	28.817	28.821	28.829	29.123	17	28.527	13	.596	70.2	82.5	74.5	75.7	99.0	1	55.0	17	44.0	86.1	67.0	647	943	858	2,448	23	N.	14
Aug	28.929	28.900	28.897	28.909	29.143	5	28.482	21	.661	65.0	78.3	70.5	71.8	91.1	21	52.1	23	39.0	81.0	63.1	359	692	570	1,621	30	NW.	8
Sept	28.940	28.909	28.923	28.924	29.257	5	28.624	21	.633	54.6	67.9	59.9	60.8	88.9	1	41.0	8	47.9	70.3	52.8	607	1,047	731	2,385	24	NW.	20
Oct	28.925	28.880	28.926	28.910	29.364	20	28.374	28	.990	44.3	54.9	48.9	49.4	81.2	8	25.8	20	55.4	57.3	42.3	1,304	1,576	1,503	4,383	28	NW.	31
Nov	28.913	28.860	28.891	28.888	29.499	11	28.307	25	1.192	33.2	45.7	38.8	39.2	65.3	8	7.0	15	58.3	51.5	28.2	1,767	2,201	2,111	6,079	36	N.	25
Dec	28.914	28.901	28.924	28.913	29.393	14	28.217	26	1.176	24.4	33.6	27.9	28.6	58.0	12	— 8.6	27	66.6	38.4	18.9	2,199	2,421	2,456	7,076	36	N.	13
Sums..	346.754	346.420	346.627	346.601	......	...	......	...	......	506.5	644.2	569.1	573.2	....	...	......	...	....	691.9	458.9	17,075	21,288	19,962	58,345	...	....	.....
																					Averages.						
Means.	28.896	28.868	28.886	28.883	29.611	*17	28.052	†22	......	42.2	53.7	47.4	47.8	99.0	‡1	—24.9	*4	....	57.7	38.2	1,422.9	1,774.0	1,665.2	......	...	....	.....

* February. † April. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	18	6	3	6	14	5	9	24	8	1.01	.30	18	3.9	6.4	3.9	4.7	0.1	5.8	0.7	[1]2.2	68.3	62.5	61.5	[1]64.1	10	14	7	9	23	31	0	
Feb	18	4	1	11	14	10	8	12	6	1.09	.57	13, 14	3.9	5.4	3.1	4.1	10.4	13.5	13.1	[2]12.3	72.4	60.6	67.1	[2]66.7	14	8	6	11	11	26	0	
Mar	29	14	4	12	8	9	3	13	1	0.52	.19	20, 21	5.1	6.0	4.4	5.2	21.2	23.6	24.6	23.1	70.2	54.2	68.0	64.1	9	15	7	10	1	26	0	
Apr	17	5	6	18	14	11	5	8	6	3.20	2.55	14	5.4	5.6	3.9	5.0	37.5	34.9	37.8	36.7	70.8	41.5	57.8	56.7	9	15	6	11	0	0	0	
May	18	7	4	15	15	10	3	14	7	11.29	2.98	8	6.6	6.4	6.2	6.4	45.9	45.0	46.6	45.8	80.0	55.1	70.0	68.4	6	12	13	18	0	0	0	17th, tornado.
June	21	8	1	8	9	5	9	13	16	12.70	3.38	1, 2	6.1	4.7	3.4	4.7	57.1	57.0	58.9	57.7	80.9	55.8	71.2	69.3	10	13	7	13	0	0	2	
July	11	3	1	11	26	11	5	7	18	4.79	2.08	29, 30	5.3	4.0	3.3	4.2	63.7	62.3	64.1	63.4	80.5	52.6	71.1	68.1	11	14	6	8	0	0	9	
Aug	14	2	4	13	27	5	4	3	21	8.39	1.39	17, 18	4.7	5.6	2.9	4.4	61.6	63.0	63.4	62.7	89.0	60.1	78.9	76.0	10	14	7	11	0	0	1	
Sept	20	2	2	10	16	5	1	10	24	4.53	1.15	15, 16	4.5	3.2	2.8	3.5	49.9	51.9	52.2	51.3	84.8	58.3	76.1	73.1	14	11	5	12	0	0	0	26th, first light frost.
Oct	23	2	7	26	8	2	6	7	12	5.03	2.72	17	5.9	5.6	4.8	5.4	40.1	43.3	41.5	41.6	85.7	68.5	76.7	77.0	8	11	12	16	0	1	0	
Nov	17	0	0	8	29	13	5	10	8	.64	.43	5	1.9	3.2	1.0	2.0	26.5	31.1	30.2	29.8	76.0	57.4	70.8	68.1	20	9	1	3	1	18	0	
Dec	21	2	4	11	10	18	7	15	5	.73	.57	6	2.9	5.4	3.6	4.0	17.1	20.8	19.1	19.0	72.7	60.0	70.0	67.6	14	10	7	9	10	25	0	
Sums	227	55	37	149	190	104	65	136	132	48.92	....	......	56.2	61.5	43.3	53.6	431.1	452.2	452.2	445.1	931.3	686.6	839.2	819.2	135	146	84	131	46	127	12	
	Percentages.																								Percentages.							
Means	20.7	5.0	3.4	13.6	17.3	9.5	5.9	12.4	12.1	.....	.....	......	4.7	5.1	3.6	4.5	35.9	37.7	37.7	37.1	77.6	57.2	69.9	68.2	37.0	40.0	23.0	35.9	12.6	34.8	3.3	

[1] Two 7 a. m. observations missed.

[2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.45 a. m., 1.45 p. m., and 9.45 p. m., local time.
Correction for instrumental error of barometer used: From 5.45 a. m., January 1, to 9.45 p. m., December 31, inclusive, +.007 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.27; February, 1.27; March, 1.26; April, 1.21; May, 1.16; June, 1.14; July, 1.13; August, 1.14; September, 1.17; October, 1.20; November, 1.24; December, 1.29.

ALEXANDER POLLAK,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

OMAHA, NEBR.

[Latitude, 41° 16′ N.; longitude, 95° 56′ W. Magnetic variation, 11° E. Elevation of barometer above sea-level, 1,113 feet. Elevation of exposed thermometer above ground, 58 feet. Elevation of rain-gauge above ground, 78 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 p. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28.994	28.949	29.002	28.982	29.393	23	28.223	12	1.170	6.8	16.7	12.2	11.9	46.3	12	—22.1	19	68.4	21.0	0.2	1,934	1,975	1,949	5,858	36	NW.	9, 10
Feb	29.101	29.078	29.090	29.090	29.611	17	28.252	15	1.359	16.5	25.7	22.9	21.7	57.2	28	—24.9	4	82.1	29.7	10.9	1,633	1,749	1,752	5,134	24	NW.	16
Mar	28.926	28.918	28.936	28.927	29.502	3	28.312	17	1.190	29.7	39.6	34.6	34.6	71.0	17	3.0	19	68.0	45.0	24.5	2,058	2,271	2,136	6,465	22	N., NW.	15, 18
Apr	28.694	28.675	28.702	28.690	29.262	24	28.052	22	1.210	46.6	61.2	52.9	53.6	88.2	13	32.0	1	56.2	65.7	42.7	2,229	2,947	2,839	8,015	35	NW.	10
May	28.760	28.748	28.737	28.748	29.179	11	28.065	17	1.114	52.0	63.1	56.9	57.3	87.2	6	37.8	5	49.4	66.8	48.6	1,805	2,501	2,320	6,626	36	SW.	6
June	28.810	28.785	28.778	28.791	28.980	13	28.453	11	.527	63.2	75.0	69.1	69.1	95.0	30	44.6	3	50.4	79.1	59.7	533	965	757	2,255	38	SE.	1
July.....	28.848	28.817	28.821	28.829	29.123	17	28.527	13	.596	70.2	82.5	74.5	75.7	99.0	1	55.0	17	44.0	86.1	67.0	647	943	858	2,448	23	N.	14
Aug.....	28.929	28.900	28.897	28.909	29.143	5	28.482	21	.661	65.0	78.3	70.5	71.3	91.1	21	52.1	23	39.0	81.0	63.1	839	692	570	1,621	30	NW.	8
Sept.....	28.940	28.909	28.923	28.924	29.257	5	28.624	21	.633	54.6	67.9	59.9	60.8	88.9	1	41.0	8	47.9	70.3	52.8	607	1,047	731	2,385	24	NW.	20
Oct	28.925	28.880	28.926	28.910	29.364	20	28.374	28	.990	44.3	54.9	48.9	49.4	81.2	8	25.8	20	55.4	57.3	42.3	1,304	1,576	1,503	4,383	28	NW.	31
Nov.....	28.913	28.860	28.891	28.888	29.499	11	28.307	25	1.192	33.2	45.7	38.8	39.2	65.8	8	7.0	15	58.3	51.5	28.2	1,767	2,201	2,111	6,079	36	N.	25
Dec	28.914	28.901	28.924	28.913	29.393	14	28.217	26	1.176	24.4	33.6	27.9	28.6	58.0	12	— 8.6	27	66.6	38.4	18.9	2,199	2,421	2,456	7,076	36	N.	13
Sums..	346.754	346.420	346.627	346.601	......	....	......	....	......	506.5	644.2	569.1	573.2	....	....	......	....	....	691.9	458.9	17,075	21,288	19,982	58,345	...	....	.....
																					Averages.						
Means.	28.896	28.868	28.886	28.883	29.611	*17	28.052	†22	......	42.2	53.7	47.4	47.8	99.0	‡1	—24.9	*4	....	57.7	38.2	1,422.9	1,774.0	1,665.2	......	...	....	.....

* February. † April. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	18	6	3	6	14	5	9	24	8	1.01	.30	18	3.9	6.4	3.9	4.7	0.1	5.8	0.7	[1]2.2	68.3	62.5	61.5	[1]64.1	10	14	7	9	23	31	0	
Feb	18	4	1	11	14	10	8	12	6	1.09	.57	13, 14	3.9	5.4	3.1	4.1	10.4	13.5	13.1	[2]12.3	72.4	60.6	67.1	[2]66.7	14	8	6	11	11	26	0	
Mar	29	14	4	12	8	9	3	13	1	0.52	.19	20, 21	5.1	6.0	4.4	5.2	21.2	23.6	24.6	23.1	70.2	54.2	68.0	64.1	9	15	7	10	1	26	0	
Apr	17	5	6	18	14	11	5	8	6	3.20	2.55	14	5.4	5.6	3.9	5.0	37.5	34.9	37.8	36.7	70.8	41.5	57.8	56.7	9	15	6	11	0	0	0	
May	18	7	4	15	15	10	3	14	7	11.29	2.98	8	6.6	6.4	6.2	6.4	45.9	45.0	46.6	45.8	80.0	55.1	70.0	68.4	6	12	13	18	0	0	0	17th, tornado.
June......	21	8	1	8	9	5	9	13	16	12.70	3.88	1, 2	6.1	4.7	3.4	4.7	57.1	57.0	58.9	57.7	80.9	55.8	71.2	69.3	10	13	7	13	0	0	2	
July	11	3	1	11	26	11	5	7	18	4.79	2.08	29, 30	5.3	4.0	3.3	4.2	63.7	62.3	64.1	63.4	80.5	52.6	71.1	68.1	11	14	6	8	0	0	9	
Aug	14	2	4	13	27	5	4	3	21	3.30	1.39	17, 18	4.7	5.6	2.9	4.4	61.6	63.0	63.4	62.7	89.0	60.1	78.9	76.0	10	14	7	11	0	0	1	
Sept	20	2	2	10	16	5	1	10	24	4.53	1.15	15, 16	4.5	3.2	2.8	3.5	49.9	51.9	52.2	51.3	84.8	58.3	76.1	73.1	14	11	5	12	0	0	0	26th, first light frost.
Oct	23	2	7	26	8	2	6	7	12	5.03	2.72	17	5.9	5.6	4.8	5.4	40.1	43.3	41.5	41.6	85.7	68.5	76.7	77.0	8	11	12	16	0	1	0	
Nov	17	0	0	8	29	13	5	10	8	.64	.43	5	1.9	3.2	1.0	2.0	26.5	31.1	30.2	29.8	76.0	57.4	70.8	68.1	20	9	1	3	1	18	0	
Dec	21	2	4	11	10	18	7	15	5	.73	.57	6	2.9	5.4	3.6	4.0	17.1	20.8	19.1	19.0	72.7	60.0	70.0	67.6	14	10	7	9	10	25	0	
Sums ..	227	55	37	149	190	104	65	136	132	48.92	....	......	56.2	61.5	43.3	53.6	431.1	452.2	452.2	445.1	931.3	686.6	839.2	819.2	135	146	84	131	46	127	12	
	Percentages.																								Percentages.							
Means.	20.7	5.0	3.4	13.6	17.3	9.5	5.9	12.4	12.1	.....	....	......	4.7	5.1	3.6	4.5	35.9	37.7	37.7	37.1	77.6	57.2	69.9	68.2	37.0	40.0	23.0	35.9	12.6	34.8	3.3	

[1] Two 7 a. m. observations missed.

[2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.45 a. m., 1.45 p. m., and 9.45 p. m., local time.
Correction for instrumental error of barometer used: From 5.45 a.m., January 1, to 9.45 p. m., December 31, inclusive, +.007 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.27; February, 1.27; March, 1.25; April, 1.21; May, 1.16; June, 1.14; July, 1.13; August, 1.14; September, 1.17; October, 1.20; November, 1.24; December, 1.29.

ALEXANDER POLLAK,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76—*Meteorological summary for the year ending December 31, 1883*—Continued.

NORFOLK, VA.

[Latitude, 36° 51′ N.; longitude, 76° 17′ W. Magnetic variation, 2° 30′ W. Elevation of barometer above sea-level, 30 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 52 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.183	30.139	30.165	30.162	30.601	24	29.423	9	1.178	36.3	42.6	38.4	39.1	65.0	21	19.0	12	46.0	44.8	32.5	1,549	1,734	1,587	4,870	23	NE.	10
Feb.[1]	30.293	30.244	30.270	30.269	30.719	2	29.818	7	.901	42.7	52.4	45.2	46.8	76.0	17	30.0	27	46.0	55.2	38.5	1,668	2,171	1,614	5,483	32	N.	17
Mar	30.020	29.933	29.988	29.980	30.494	5	29.365	10	1.129	39.7	50.9	43.7	44.8	72.0	19	25.0	8	47.0	53.9	35.8	1,855	2,428	2,248	6,531	28	N.	15
Apr	30.003	29.951	30.001	29.985	30.392	14	29.474	23	.918	52.9	61.2	53.3	55.8	80.0	6	37.0	1	43.0	63.5	47.6	1,651	2,313	2,116	6,080	28	NE.	17
May	29.984	29.922	29.954	29.953	30.286	18	29.338	21	.948	63.0	72.4	63.5	66.3	89.0	29	44.0	1	45.0	74.5	57.6	1,636	2,299	1,975	5,910	23	SW.	14
June	29.994	29.949	29.978	29.974	30.367	2	29.718	19	.649	75.1	82.6	72.9	76.9	95.3	19	58.5	15, 16	36.8	84.8	68.7	1,885	2,034	1,805	5,224	24	SW.	18
July	30.024	29.976	30.005	30.002	30.242	21	29.701	24	.541	77.4	85.7	75.7	79.6	98.2	22	64.5	2	33.7	87.9	71.1	1,322	1,865	1,658	4,845	23	SW.	6
Aug	30.010	29.975	30.008	29.998	30.175	14	29.719	2	.456	74.4	81.2	73.1	76.2	94.5	20	61.6	31	32.9	82.4	68.9	1,196	2,065	1,684	4,945	20	NE.	12
Sept	30.035	29.990	30.006	30.010	30.285	9	29.683	24	.602	67.7	75.2	68.5	70.5	85.0	16	55.3	27	29.7	76.4	63.8	1,613	2,132	1,867	5,612	26	NE.	11
Oct	30.121	30.079	30.099	30.100	30.513	17	29.593	29	.920	59.7	65.7	61.2	62.2	86.6	2	47.1	25	39.5	68.4	56.7	1,729	2,402	1,819	5,950	28	NW.	2
Nov	30.190	30.132	30.158	30.160	30.617	17	29.807	11	.810	49.0	59.8	52.3	53.7	79.2	10	27.5	16	51.7	62.2	45.0	1,653	2,218	1,689	5,560	27	N.	27
Dec	30.139	30.084	30.122	30.115	30.502	23	29.610	27	.892	42.3	51.6	45.4	46.4	68.9	8	24.0	16	44.9	58.9	38.8	972	1,496	1,027	3,495	20	N., SW.	15, 18
Sums	360.996	360.874	360.754	360.708	......	....	......	....	.....	680.2	781.3	693.2	718.3	....	....	....	.....	......	807.9	625.0	18,229	25,157	21,119	64,505	....	....	......
																					Averages.						
Means	30.083	30.031	30.063	30.059	30.719	*2	29.338	†21	.....	56.7	65.1	57.8	59.9	98.2	‡22	19.0	§12	......	67.3	52.1	1,519.1	2,096.4	1,759.9	......	....	....	......

[1] One 7 a. m. observation missed.

* February.

† May.

‡ July.

§ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.	Any 3 consecutive 8 hourly measurements.		Washington time. Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).				Number of days—							Remarks.
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	25	21	2	4	9	12	6	12	2	6.91	1.57	6	4.7	6.6	5.6	5.6	32.0	33.8	33.6	33.1	84.6	73.2	83.7	80.5	9	12	10	17	0	12	0	
Feb.[1]	17	16	11	2	8	14	6	5	4	3.84	1.00	7, 8	5.1	6.2	4.3	5.2	35.4	39.2	38.6	37.7	76.4	62.8	78.2	72.5	9	12	6	9	0	1	0	
Mar	14	18	10	6	10	11	15	8	1	3.03	1.16	9, 10	4.6	4.7	4.1	4.5	30.9	31.6	33.3	31.9	71.0	50.4	68.8	63.2	12	13	6	12	0	10	0	
Apr	18	18	9	10	9	17	4	1	4	9.76	5.19	16, 17	5.4	6.7	5.3	5.8	47.3	46.3	46.7	46.8	81.9	60.7	78.9	73.8	7	14	9	9	0	0	0	
May	13	14	8	6	6	23	9	6	8	4.09	1.01	15	3.9	4.0	4.0	4.0	54.5	53.7	56.4	54.9	75.3	54.9	78.7	69.6	13	18	5	8	0	0	0	
June	3	8	15	15	7	29	6	3	4	6.52	3.77	13, 14	4.5	4.9	2.5	4.0	67.0	64.7	67.5	66.4	76.4	56.0	83.6	72.0	9	19	2	11	0	0	4	
July	8	17	4	8	15	23	14	2	2	3.87	.93	9, 10	3.5	4.5	2.9	3.6	69.0	67.4	69.4	68.6	76.1	55.9	81.7	71.2	15	14	2	15	0	0	11	
Aug	9	32	13	5	12	13	3	5	1	2.91	1.45	15, 16	4.6	4.7	2.5	3.9	67.3	64.7	66.5	66.2	79.3	58.8	80.3	72.8	9	19	3	8	0	0	6	
Sept	6	28	6	6	13	18	5	1	7	6.63	2.66	11	6.0	6.2	4.5	5.6	63.2	63.0	63.0	63.1	86.2	67.6	83.6	79.1	9	8	13	8	0	0	0	
Oct	21	31	9	5	8	6	5	3	5	3.79	1.52	22, 23	5.1	6.7	5.9	5.9	54.7	55.6	55.5	55.3	84.2	71.3	82.3	79.3	7	12	12	16	0	0	0	
Nov	24	11	4	0	13	23	2	8	5	.55	.42	26	3.9	4.2	3.0	3.7	40.0	43.2	43.4	42.2	73.2	56.3	72.2	67.2	18	7	5	4	0	2	0	
Dec	10	12	2	5	8	21	9	6	14	2.40	.75	23, 24	4.2	4.3	4.5	4.3	35.7	38.3	36.8	36.9	77.7	62.8	72.9	71.1	14	10	7	12	0	4	0	
Sums	174	226	93	72	118	210	84	60	57	54.30	......	......	55.5	63.7	49.1	56.1	597.0	601.5	610.7	603.1	942.3	730.7	944.4	872.3	131	153	80	129	0	29	21	
	Percentages.																								Percentages.							
Means.	15.9	20.6	8.5	6.6	10.8	19.2	7.7	5.5	5.2	......	......	......	4.6	5.3	4.1	4.7	49.8	50.1	50.9	50.3	78.5	60.9	78.7	72.7	36.0	42.0	22.0	35.3	0	8.0	5.8	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.03 a. m., 3.03 p. m., and 11.03 p. m., local time.

Correction for instrumental error of barometer used: From 7.03 a. m., January 1, 1883, to 11.03 p. m., December 31, 1883, inclusive, +0.012 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.030; February, 0.030; March, 0.030; April, 0.030; May, 0.030; June, 0.030; July, 0.030; August, 0.030; September, 0.030; October, 0.030; November, 0.030; December, 0.030.

WILLIAM DAVIS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

NORTH PLATTE, NEBR.

[Latitude, 41° 8′ N.; longitude, 100° 45′ W. Magnetic variation, 14° E. Elevation of barometer above sea-level, 2,841 feet. Elevation of exposed thermometer above ground, 21 feet. Elevation of rain-gauge above ground, 34 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	27.102	27.061	27.120	27.094	27.429	19	26.490	12	.939	8.8	21.8	13.9	14.8	50.3	9	—26	19	76.3	27.1	4.0	1,973	2,339	2,450	6,762	36	NW.	9
Feb	27.243	27.194	27.237	27.225	27.672	26	26.433	15	1.239	10.3	25.0	15.1	16.8	52.3	28	—29	4	81.3	29.5	5.2	1,924	2,120	1,780	5,824	36	N.	15
Mar	27.114	27.085	27.103	27.101	27.712	2	26.611	17	1.101	28.8	45.2	34.8	36.3	71.3	17	12	18	59.3	51.0	2.56	1,689	2,776	2,515	6,980	34	W.	16
Apr	26.921	26.906	26.919	26.915	27.583	24	26.012	21	1.571	39.8	56.5	46.9	47.6	79.3	20	21	2	58.3	60.7	36.8	2,649	3,195	3,412	9,256	52	SE.	20 21
May	26.987	26.956	26.994	26.979	27.355	10	26.283	17	1.072	47.0	60.7	53.0	53.6	87.3	6	31	3	56.3	65.4	43.9	2,901	3,321	3,266	9,488	40	E.	13
June[1]	27.056	27.048	27.058	27.054	27.222	24	26.716	10	.506	59.6	74.9	65.5	66.7	93.3	30	46	2	47.3	78.2	56.8	2,136	2,592	2,588	7,316	90	SW.	16
July	27.101	27.086	27.085	27.091	27.376	17	26.737	15	.639	65.3	81.4	71.9	72.9	95.3	8	54	17	41.3	84.9	62.7	2,243	2,297	2,599	7,139	37	NW.	4
Aug	27.172	27.149	27.153	27.158	27.331	28	26.733	21	.598	62.4	78.5	68.2	69.7	92.3	21 29	48	22	44.3	80.8	59.9	1,666	2,070	2,264	6,000	44	E.	10
Sept.[2]	27.187	27.151	27.172	27.170	27.494	20	26.855	13	.639	52.0	69.5	58.6	60.0	91.3	6	36	21	55.3	72.3	50.0	2,017	2,758	2,590	7,365	40	NW.	21
Oct	27.091	27.063	27.105	27.086	27.550	31	26.585	17	.965	39.1	51.5	43.5	44.7	83.3	7	29	25	54.3	53.5	37.0	2,059	2,711	2,692	7,462	38	S.	7
Nov	27.086	27.044	27.071	27.067	27.610	11	26.558	25	1.052	29.3	49.6	35.1	38.0	67.0	2	12	14	55.0	52.3	27.4	1,261	2,033	1,810	5,104	32	N.	13
Dec.[1]	27.102	27.095	27.135	27.111	27.605	14	26.470	26	1.135	24.1	37.8	26.5	29.5	59.0	3	—5.5	31	64.5	41.2	20.2	1,211	1,742	1,733	4,686	36	NW., W.	6, 7
Sums	325.162	324.838	325.152	325.051	......	....	......	....	......	466.0	652.4	533.0	550.6	....	....	......	..	....	696.9	429.5	23,729	29,954	29,699	83,382	....	....	....
																					Averages.						
Means	27.097	27.070	27.096	27.088	27.712	*2	26.012	†21	......	38.8	54.4	44.4	45.9	95.3	‡8	—29	§4	....	58.1	35.8	1,977.4	2,496.2	2,474.9	....	....	....	....

[1] Two 7 a. m. observations missed.

[2] One 7 a. m. observation missed.

* March.

† April.

‡ July.

§ February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	7	8	5	9	5	8	21	12	18	1.20	0.80	17, 18	4.2	4.8	3.8	4.3	2.4	11.2	7.3	7.0	74.9	64.0	74.8	71.2	11	14	6	11	20	31	0	
Feb	3	5	3	2	7	13	25	18	8	1.38	0.60	1	3.1	4.3	2.5	3.3	5.0	16.3	9.3	10.2	75.8	69.9	77.5	74.4	15	9	4	6	13	27	0	
Mar	5	5	10	13	6	6	11	24	13	0.47	0.31	31	5.2	5.1	3.7	4.7	22.2	25.9	24.8	24.3	75.9	51.1	67.5	64.8	14	7	10	7	1	27	0	
Apr	10	17	8	7	8	3	8	15	14	3.11	1.29	21	5.8	5.7	4.9	5.5	32.8	34.4	36.6	34.6	78.1	47.5	69.1	64.9	7	14	9	16	0	7	0	
May	8	7	14	15	6	5	17	18	3	4.07	1.02	8, 9	6.2	6.3	5.2	5.9	41.1	43.7	43.5	42.8	80.4	57.6	72.0	70.0	6	15	10	15	0	1	0	
June[1]	6	7	11	19	7	5	10	10	13	7.49	2.96	3, 4	4.4	4.4	2.6	3.8	54.5	56.0	57.5	56.0	83.5	53.1	76.3	71.0	11	16	1	11	0	0	2	
July	7	7	18	23	5	4	9	10	10	1.38	0.57	4, 5	4.7	3.6	3.9	4.1	58.4	57.7	59.6	58.6	79.4	47.3	67.0	64.6	11	17	3	11	0	0	10	
Aug	2	3	13	30	14	5	8	7	16	4.51	1.42	14	4.1	3.5	3.4	3.7	57.2	60.4	59.9	59.2	83.6	57.4	75.6	72.2	16	10	5	14	0	0	2	
Sept[2]	7	10	14	19	8	0	14	10	7	1.08	0.69	14	5.6	3.0	3.2	3.9	46.4	49.6	49.0	48.3	81.8	51.3	71.4	68.2	12	13	4	6	0	0	1	
Oct	10	5	11	19	14	5	8	13	8	3.47	1.10	23	5.8	6.0	4.1	5.3	34.7	37.0	37.7	36.5	84.4	62.9	81.2	76.2	9	12	10	16	0	4	0	
Nov	8	4	4	11	9	12	8	16	18	0.42	0.42	4, 5	2.7	4.1	2.0	2.9	21.6	25.8	26.2	24.5	73.3	41.9	70.2	61.8	14	14	2	2	0	22	0	
Dec[1]	6	10	3	2	6	3	20	9	34	1.43	0.95	5, 6	4.1	5.2	4.3	4.5	18.4	26.1	20.6	21.7	78.4	64.9	78.8	74.0	12	10	7	11	6	30	0	
Sums	79	88	114	169	95	69	154	162	162	30.01	....	......	55.9	56.0	43.6	51.9	394.7	444.1	432.0	423.7	949.5	668.9	881.4	833.3	138	151	71	126	40	149	15	
	Percentages.																								Percentages.							
Means	7.2	8.1	10.4	15.5	8.7	6.3	14.1	14.8	14.8	.....	....	......	4.7	4.7	3.6	4.3	32.9	37.0	36.0	35.3	79.1	55.7	73.4	69.4	38.3	41.9	19.7	34.6	11.0	40.8	4.1	

[1] Two 7 a. m. observations missed.

[2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.24 a. m., 1.24 p. m., and 9.24 p. m., local time.

Correction for instrumental error of barometer used: From 5.24 a. m., January 1, to 9.24 p. m., December 31, inclusive, —.010 inch.

The barometric observations may be reduced to sea-level by adding the following constants to the various months: January, 3.120; February, 3.100; March, 3.060; April, 2.960; May, 2.870; June, 2.800; July, 2.800; August, 2.800; September, 2.880; October, 2.960; November, 3.080; December, 3.160.

JOHN J. McLEAN,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

OLYMPIA, WASH.

[Latitude, 47° 3′ N.; longitude, 122° 53′ W. Magnetic variation, 22° 0′ E. Elevation of barometer above sea-level, 36 feet. Elevation of exposed thermometer above ground, 23 feet. Elevation of rain-gauge above ground, 39 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°	°	°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30. 131	30. 117	30. 120	30. 123	30. 622	19	29. 421	25	1. 201	34. 0	37. 4	36. 4	35. 9	50. 0	5, 6, 9	9. 0	19	41. 0	41. 3	31. 3	877	1, 210	1, 111	3, 198	25	W.	11
Feb	30. 165	30. 189	30. 168	30. 174	30. 705	4	29. 352	12	1. 353	29. 8	36. 3	34. 6	33. 6	57. 0	27	8. 0	4	49. 0	41. 3	27. 3	818	423	691	1, 432	20	SW.	22
Mar	30. 016	30. 023	29. 987	30. 009	30. 378	15	29. 286	28	1. 092	39. 4	50. 4	47. 9	45. 9	66. 0	14, 21	32. 0	{ 9, 12 } { 13, 31 }	34. 0	56. 8	37. 5	140	306	516	962	18	SW.	28
Apr	29. 951	29. 939	29. 927	29. 939	30. 326	23	29. 590	19	. 736	41. 7	50. 5	48. 1	46. 8	73. 0	29	32. 0	23	41. 0	55. 6	39. 9	456	755	886	2, 097	24	W.	22
May	30. 028	30. 000	29. 984	30. 004	30. 357	26	29. 607	12	. 750	44. 1	59. 4	56. 4	53. 3	80. 0	29	38. 0	31	42. 0	65. 3	43. 0	172	384	777	1, 408	18	W.	12
June	30. 097	30. 055	30. 042	30. 065	30. 410	6	29. 841	12	. 569	47. 2	67. 0	64. 0	59. 4	83. 0	12	38. 0	1	45. 0	78. 0	45. 6	383	527	1, 106	2, 016	16	S.	1
July	30. 053	30. 072	30. 017	30. 047	30. 246	23	29. 780	9	. 466	50. 1	67. 9	66. 6	61. 5	90. 0	7	41. 0	1	49. 0	76. 1	48. 2	178	143	405	[1]726	14	W.	18
Aug	30. 076	30. 059	30. 043	30. 059	30. 286	18	29. 824	8	. 462	56. 4	64. 8	62. 7	61. 3	78. 0	2, 3	46. 0	31	32. 0	71. 3	55. 1	339	478	559	1, 371	16	SW.	16
Sept[2]	29. 985	29. 985	29. 960	29. 977	30. 278	19	29. 615	29	. 663	50. 2	62. 3	57. 3	56. 6	77. 0	20	38. 0	20	39. 0	67. 0	48. 1	134	414	516	1, 064	15	SW.	12
Oct	29. 969	29. 975	29. 965	29. 970	30. 328	30	29. 322	27	1. 006	45. 2	52. 6	48. 3	48. 7	64. 0	1	33. 0	23	31. 0	57. 3	42. 9	588	533	918	2, 039	22	SW.	27
Nov	30. 046	30. 061	30. 049	30. 052	30. 441	11	29. 451	26	. 990	44. 3	47. 6	45. 2	45. 7	57. 0	10	29. 0	25	28. 0	50. 2	41. 9	861	982	978	2, 821	28	SW.	21
Dec	30. 050	30. 046	30. 046	30. 047	30. 481	31	29. 269	26	1. 212	37. 5	41. 7	40. 2	39. 8	56. 0	1	24. 0	31	32. 0	45. 9	35. 4	472	593	664	1, 738	28	S.	26
Sums..	360. 567	360. 521	360. 308	360. 466	......	....	......	....	......	519. 9	637. 9	607. 7	588. 5	....	......	....	....	....	701. 1	496. 2	4, 918	6, 743	9, 127	20, 872	....	....	....
																					Averages.						
Means.	30. 047	30. 043	30. 028	30. 039	30. 706	*4	29. 269	†26	......	43. 3	53. 2	50. 6	49. 0	90. 0	*7	8. 0	*4	....	58. 4	41. 4	409. 8	561. 9	760. 6	......	....	....	....

[1] For 30 days.

[2] One 7 a. m. observation missed.

* February.

† December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	5	5	0	0	48	10	2	3	20	5.68	1.10	24, 25	7.3	8.6	7.1	7.7	29.7	31.4	31.6	30.9	84.4	78.7	82.9	82.0	3	8	20	20	2	9	0	
Feb	6	8	1	0	15	5	1	0	48	3.18	1.27	12	5.7	6.1	4.7	5.5	24.4	29.4	29.1	27.6	81.5	76.6	79.8	79.3	8	9	11	11	4	19	0	Zodiacal light on 8th.
Mar	17	1	0	0	9	4	2	2	58	2.99	1.68	27	4.9	5.7	4.3	5.0	36.4	42.5	41.5	40.1	89.0	75.1	79.0	81.0	11	12	8	7	0	0	0	
Apr	10	1	0	0	27	9	5	3	35	10.78	1.70	10, 11	6.8	8.0	6.4	7.1	38.7	41.5	43.7	42.3	89.3	80.5	85.5	85.1	4	10	16	20	0	0	0	Last frost 24th.
May	20	3	0	0	17	8	9	8	28	2.55	.52	22, 23	6.2	5.9	5.9	6.0	40.5	49.8	47.7	45.0	87.4	71.6	74.1	77.7	7	11	13	12	0	0	0	
June	30	0	0	1	5	18	17	6	13	.21	.20	3	4.7	5.0	4.3	4.7	39.3	49.4	46.0	44.9	74.7	53.7	52.9	60.4	10	11	9	2	0	0	0	
July	21	1	0	0	2	2	7	1	59	(1)	(1)	18	1.9	2.0	1.5	1.8	40.4	49.6	46.3	45.4	69.7	52.8	49.1	57.2	21	9	1	0	0	0	0	
Aug	14	0	0	1	4	9	8	3	54	.01	.01	3	4.0	4.0	4.1	4.0	49.5	48.7	47.6	48.6	77.4	57.9	58.1	64.5	13	11	7	1	0	0	0	
Sept[2]	5	0	0	0	18	6	3	5	53	2.24	1.40	8, 9	3.3	4.2	3.3	3.6	47.8	50.9	51.7	50.1	91.4	67.4	81.7	80.2	15	7	7	9	0	0	0	
Oct	10	1	0	0	21	10	1	1	49	3.73	1.08	25, 26	6.6	8.1	3.9	6.2	42.6	44.8	43.6	43.7	90.6	75.2	84.1	83.3	4	15	12	15	0	0	0	
Nov	3	0	0	0	39	10	3	2	33	5.10	1.34	25, 26	8.1	9.5	8.5	8.7	41.0	41.1	41.0	41.0	88.5	78.5	85.4	84.1	0	8	22	19	0	1	0	First frost 18th; snow 21st.
Dec	2	1	0	0	25	10	2	2	51	5.14	1.26	26, 27	6.0	8.4	6.2	6.9	33.9	35.4	36.6	35.3	86.9	78.7	87.2	84.3	3	14	14	18	0	7	0	
Sums	143	21	1	2	230	101	60	36	501	41.61	....	.....	65.5	75.5	60.2	67.2	464.2	517.5	506.4	495.9	1,010.8	846.7	899.8	919.1	99	125	140	134	6	36	0	
	Percentages.																								Percentages.							
Means	13.1	1.9	0.1	0.2	21.0	9.2	5.5	3.3	45.8	....	....	......	5.5	6.3	5.0	5.6	38.7	43.1	42.2	41.3	84.2	70.6	75.0	76.0	27.2	34.3	38.5	36.8	1.6	9.9	0.0	

[1] Inappreciable. [2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 3.56 a. m., 11.56 a. m., and 7.56 p. m., local time.

Correction for instrumental error of barometer used: From 3.56 a. m., January 1, to 7.56 p. m., December 31, inclusive, +.020 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.040; February, 0.040; March, 0.040; April, 0.040; May, 0.040; June, 0.040; July, 0.040; August, 0.040; September, 0.040; October, 0.040; November, 0.040; December, 0.040.

JNO. DASCOMB,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

OMAHA, NEBR.

[Latitude, 41° 16′ N.; longitude, 95° 56′ W. Magnetic variation, 11° E. Elevation of barometer above sea-level, 1,113 feet. Elevation of exposed thermometer above ground, 58 feet. Elevation of rain-gauge above ground, 78 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 p. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28.994	28.949	29.002	28.982	29.393	23	28.223	12	1.170	6.8	16.7	12.2	11.9	46.3	12	—22.1	19	68.4	21.0	0.2	1,934	1,975	1,949	5,858	36	NW.	9, 10
Feb	29.101	29.078	29.090	20.090	29.611	17	28.252	15	1.359	16.5	25.7	22.9	21.7	57.2	28	—24.9	4	82.1	29.7	10.9	1,633	1,749	1,752	5,134	24	NW.	16
Mar	28.926	28.918	28.936	28.927	29.502	3	28.312	17	1.190	29.7	39.6	34.6	34.6	71.0	17	8.0	19	68.0	45.0	24.5	2,058	2,271	2,136	6,465	22	N., NW.	15, 18
Apr	28.694	28.675	28.702	28.690	29.262	24	28.052	22	1.210	46.6	61.2	52.9	53.6	88.2	13	32.0	1	56.2	65.7	42.7	2,229	2,947	2,839	8,015	35	NW.	10
May	28.760	28.748	28.737	28.748	29.179	11	28.065	17	1.114	52.0	63.1	56.9	57.3	87.2	6	37.8	5	49.4	66.8	48.6	1,805	2,501	2,320	6,626	36	SW.	6
June	28.810	28.785	28.778	28.791	28.980	13	28.453	11	.527	63.2	75.0	69.1	69.1	95.0	30	44.6	3	50.4	79.1	59.7	533	965	757	2,255	38	SE.	1
July	28.848	28.817	28.821	28.829	20.123	17	28.527	13	.596	70.2	82.5	74.5	75.7	99.0	1	55.0	17	44.0	86.1	67.0	647	943	858	2,448	23	N.	14
Aug	28.929	28.900	28.897	28.909	29.143	5	28.482	21	.661	65.0	78.3	70.5	71.3	91.1	21	52.1	23	39.0	81.0	63.1	839	692	570	1,621	30	NW.	8
Sept	28.940	28.909	28.923	28.924	29.257	5	28.624	21	.633	54.6	67.9	59.9	60.8	88.9	1	41.0	8	47.9	70.3	52.8	607	1,047	731	2,385	24	NW.	20
Oct	28.925	28.880	28.926	28.910	29.364	20	28.374	28	.990	44.3	54.9	48.9	49.4	81.2	8	25.8	20	55.4	57.3	42.3	1,304	1,576	1,503	4,383	28	NW.	31
Nov	28.913	28.860	28.891	28.888	29.499	11	28.307	25	1.192	33.2	45.7	38.8	39.2	65.3	8	7.0	15	58.3	51.5	28.2	1,767	2,201	2,111	6,079	36	N.	25
Dec	28.914	28.901	28.924	28.913	29.393	14	28.217	26	1.176	24.4	33.6	27.9	28.6	58.0	12	—8.6	27	66.6	38.4	18.9	2,199	2,421	2,456	7,076	36	N.	13
Sums..	346.754	346.420	346.627	346.601	......	....	......	....	......	506.5	644.2	569.1	573.2	....	....	......	....	....	691.9	458.9	17,075	21,288	19,982	58,345	...	....	.....
																					Averages.						
Means.	28.896	28.868	28.886	28.883	29.611	*17	28.052	†22	......	42.2	53.7	47.4	47.8	99.0	‡1	—24.9	*4	....	57.7	38.2	1,422.9	1,774.0	1,665.2	......	...	....	.....

* February. † April. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	18	6	3	6	14	5	9	24	8	1.01	.30	18	3.9	6.4	3.9	4.7	0.1	5.8	0.7	[1]2.2	68.3	62.5	61.5	[1]64.1	10	14	7	9	23	31	0	
Feb	18	4	1	11	14	10	8	12	6	1.09	.57	13, 14	3.9	5.4	3.1	4.1	10.4	13.5	13.1	[2]12.3	72.4	60.6	67.1	[2]66.7	14	8	6	11	11	26	0	
Mar	29	14	4	12	8	9	3	13	1	0.52	.19	20, 21	5.1	6.0	4.4	5.2	21.2	23.6	24.6	23.1	70.2	54.2	68.0	64.1	9	15	7	10	1	26	0	
Apr	17	5	6	18	14	11	5	8	6	3.20	2.55	14	5.4	5.6	3.9	5.0	37.5	34.9	37.8	36.7	70.8	41.5	57.8	56.7	9	15	6	11	0	0	0	
May	18	7	4	15	15	10	3	14	7	11.29	2.98	8	6.6	6.4	6.2	6.4	45.9	45.0	46.6	45.8	80.0	55.1	70.0	68.4	6	12	13	18	0	0	0	17th, tornado.
June	21	8	1	8	9	5	9	13	16	12.70	3.38	1, 2	6.1	4.7	3.4	4.7	57.1	57.0	58.9	57.7	80.9	55.8	71.2	69.3	10	13	7	13	0	0	2	
July	11	3	1	11	26	11	5	7	18	4.79	2.08	29, 30	5.3	4.0	3.3	4.2	63.7	62.3	64.1	63.4	80.5	52.6	71.1	68.1	11	14	6	8	0	0	9	
Aug	14	2	4	13	27	5	4	3	21	3.30	1.89	17, 18	4.7	5.6	2.9	4.4	61.6	63.0	63.4	62.7	89.0	60.1	78.9	76.0	10	14	7	11	0	0	1	
Sept	20	2	2	10	16	5	1	10	24	4.53	1.15	15, 16	4.5	3.2	2.8	3.5	49.9	51.9	52.2	51.3	84.8	58.3	76.1	73.1	14	11	5	12	0	0	0	26th, first light frost.
Oct	23	2	7	26	8	2	6	7	12	5.03	2.72	17	5.9	5.6	4.8	5.4	40.1	43.3	41.5	41.6	85.7	68.5	76.7	77.0	8	11	12	16	0	1	0	
Nov	17	0	0	8	29	13	5	10	8	.64	.43	5	1.9	3.2	1.0	2.0	26.5	31.1	30.2	29.8	76.0	57.4	70.8	68.1	20	9	1	3	1	18	0	
Dec	21	2	4	11	10	18	7	15	5	.73	.57	6	2.9	5.4	3.6	4.0	17.1	20.8	19.1	19.0	72.7	60.0	70.0	67.6	14	10	7	9	10	25	0	
Sums	227	55	37	149	190	104	65	136	132	48.92	......	......	56.2	61.5	43.3	53.6	431.1	452.2	452.2	445.1	931.8	686.6	839.2	819.2	135	146	84	131	46	127	12	
	Percentages.																								Percentages.							
Means	20.7	5.0	3.4	13.6	17.3	9.5	5.9	12.4	12.1	......	......	......	4.7	5.1	3.6	4.5	35.9	37.7	37.7	37.1	77.6	57.2	69.9	68.2	37.0	40.0	23.0	35.9	12.6	34.8	3.3	

[1] Two 7 a. m. observations missed.

[2] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.45 a. m., 1.45 p. m., and 9.45 p. m., local time.
Correction for instrumental error of barometer used: From 5.45 a.m., January 1, to 9.45 p. m., December 31, inclusive, +.007 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.27; February, 1.27; March, 1.25; April, 1.21; May, 1.16; June, 1.14; July, 1.13; August, 1.14; September, 1.17; October, 1.20; November, 1.24; December, 1.29.

ALEXANDER POLLAK,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

OOGLAAMIE, ALASKA.

[Latitude, 71° 17′ N.; longitude, 156° 40′, W. Magnetic variation, 36° 32′ E. Elevation of barometer above sea-level, 17 feet. Elevation of exposed thermometer above ground, 4 feet. Elevation of rain-gauge above ground, 12 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.953	29.946	29.938	29.946	30.939	15	29.006	5	1.933	−20.4	−20.5	−20.4	−20.4	13.1	24	−41.8	15	54.9	−10.5	−25.3	......	......	......	10,155	57	E.	16
Feb	30.221	30.203	30.186	30.203	30.896	11	29.010	9	1.886	− 9.2	− 9.4	− 8.4	− 9.0	24.1	6	−34.3	26	58.4	2.0	−15.2	......	......	......	9,279	71	WSW.	9
Mar	30.019	30.004	30.006	30.010	30.826	2	29.488	8	1.838	−18.5	−16.4	−14.1	−16.3	25.9	27	−46.7	10	72.6	− 5.9	−23.1	......	......	......	8,656	36	SSW.	27
Apr	30.010	30.013	30.000	30.011	30.541	29	29.346	10	1.195	− 8.8	− 3.1	− 1.7	− 4.5	17.0	21	−35.0	18	52.0	3.3	−12.2	......	......	......	6,181	33	ENE.	9
May	29.868	20.864	29.853	20.862	30.579	1	30.133	16	1.446	18.0	23.6	25.7	22.4	37.4	25	−14.0	1	51.4	28.8	15.1	......	......	......	9,199	30	E.	30
June	29.927	29.930	29.916	29.924	30.214	19	29.551	13	0.663	29.2	33.1	33.3	31.9	51.2	28	18.1	4	33.1	36.9	27.5	......	......	......	8,631	37	ENE.	24
July	29.865	29.872	29.868	29.868	30.264	25	29.542	20	0.722	33.0	37.0	37.1	35.7	53.5	8	27.3	30	26.2	40.9	31.3	......	......	......	8,961	28	NE.	10
Aug[a]	......	......	......	......	......	....	......	..	......	......	......	......	......	....	....	......	....	....	......	......	......	......	......	......	....	......	....
Sept	......	......	......	......	......	....	......	..	......	......	......	......	......	....	....	......	....	....	......	......	......	......	......	......	....	......	....
Oct	......	......	......	......	......	....	......	..	......	......	......	......	......	....	....	......	....	....	......	......	......	......	......	......	....	......	....
Nov	......	......	......	......	......	....	......	..	......	......	......	......	......	....	....	......	....	....	......	......	......	......	......	......	....	......	....
Dec	......	......	......	......	......	....	......	..	......	......	......	......	......	....	....	......	....	....	......	......	......	......	......	......	....	......	....
Sums	......	......	......	......	......	....	......	....	......	......	......	......	......	....	....	......	....	....	......	......	......	......	......	......	....	......	....
																					Averages.						
Means	......	......	......	......	......	....	......	....	......	......	......	......	......	....	....	......	....	....	......	......	......	......	......	......	....	......	....

[a] Station closed August 7, 1883.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—																	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
																			Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	North-northeast.	South-southwest.	North-northwest.	East-northeast.	East-southeast.	South-southeast.	West-northwest.	West-southwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.																		*In.*	*In*						°	°	°	°												
Jan	2	3	9	3	0	3	10	2	9	0	1	17	10	1	19	3	1	0.14	0.07	23, 24	2.9	3.3	2.5	2.9	....	....	....	....	90.3	97.2	99.8	[1]98.8	19	10	2	6	31	31	0	
Feb	4	3	6	5	7	6	14	4	0	6	4	0	4	2	8	10	1	0.84	0.25	4, 5	4.3	6.1	5.9	5.4	....	....	....	....	99.5	99.6	100.0	99.7	7	14	7	12	28	28	0	
Mar	2	5	5	8	6	6	5	0	1	6	2	16	11	4	3	13	0	0.14	0.07	29	3.1	5.1	4.3	4.2	....	....	....	....	97.8	97.6	100.0	[2]98.5	12	16	3	7	31	31	0	
Apr	10	7	6	1	3	2	12	5	1	5	4	14	4	3	5	4	4	0.54	0.21	20, 21	6.4	6.9	6.8	6.7	....	....	....	....	100.0	99.0	99.8	99.6	5	11	14	11	30	30	0	
May	3	9	11	2	3	16	2	2	13	3	3	9	10	4	1	2	0	0.31	0.14	7	7.1	7.2	8.1	7.5	....	....	....	....	99.3	98.6	99.0	99.0	3	8	20	5	17	31	0	
June	4	7	12	4	2	4	3	3	9	1	2	27	6	1	1	3	1	0.31	0.13	29, 30	8.6	7.3	6.9	7.6	....	....	....	....	98.7	94.6	94.6	96.0	2	10	18	10	2	25	0	
July	4	12	14	1	0	3	2	0	19	0	1	21	6	2	1	7	0	1.04	0.32	2, 3	5.5	6.5	7.2	6.4	....	....	....	....	97.2	94.6	91.5	94.4	5	14	12	12	0	17	0	
Aug[3]	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
Sept	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
Oct	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
Nov	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
Dec	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
Sums	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....							....	....	....	....					....	....	....	....	....	....	....	
	Percentages.																																Percentages.							
Means	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....	....	....	

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[1] Five 7 a. m., two 3 p. m. observations missed.

[2] One 7 a. m., three 3 p. m., one 11 p. m. observations missed.

[3] Station closed August 7, 1883.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 1.43 a. m, 9.43 a. m., 5.43 p. m., local time.
Correction for instrumental error of barometer used: From 1.43 a. m., January 1, to 5.43 p. m., August 6, inclusive, —0.006.

COMPILED AT O. C. S. O.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

OSWEGO, N. Y.

[Latitude, 43° 29' N.; longitude, 76° 35' W. Magnetic variation, 6° 45' W. Elevation of barometer above sea-level, 304 feet. Elevation of exposed thermometer above ground, 35 feet. Elevation of rain-gauge above ground, 62 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.801	29.785	29.793	29.793	30.241	4	29.243	17	0.998	20.8	25.2	22.9	23.0	42.5	21	—0.8	26	43.3	30.6	14.6	2,800	3,053	2,872	8,725	41	W.	21
Feb	29.841	29.846	29.841	29.843	30.361	2	29.175	7	1.186	24.2	28.9	26.5	26.5	51.3	17	2.0	24	49.3	34.0	18.9	2,896	3,151	2,979	9,026	34	W.	8
Mar	29.640	29.587	29.616	29.614	30.143	5	28.912	10	1.231	23.3	29.2	25.8	26.1	56.0	14	7.5	5 8 21	48.5	35.0	17.7	2,490	2,641	2,722	7,853	32	NW.	7
Apr	29.681	29.646	29.671	29.666	29.963	14	29.234	11	0.729	38.4	44.9	41.0	41.4	76.0	15	15.5	1	60.5	50.1	34.7	1,698	2,183	1,671	5,552	25	S., SW.	11, 27
May	29.623	29.601	29.599	29.608	29.939	17	29.218	20	0.721	48.8	55.2	50.7	51.6	84.5	10, 18	36.5	13	48.0	63.1	43.5	2,275	2,686	2,052	7,013	30	NE.	21
June	29.622	29.599	29.599	29.607	30.100	2	29.145	11	0.955	63.3	69.1	63.7	65.4	86.0	9	43.8	1	42.2	76.9	57.4	1,610	2,103	1,545	5,258	24	W.	11
July	29.638	29.609	29.625	29.624	29.878	20	29.302	12	0.576	65.6	71.0	65.0	67.2	92.0	6	52.0	1	40.0	78.7	60.3	1,374	2,062	1,544	4,980	24	NE.	8
Aug	29.710	29.692	29.704	29.702	29.990	27	29.359	2	0.631	62.9	69.9	64.3	65.7	97.5	22	52.3	29	45.2	75.5	59.8	1,433	2,189	1,529	5,151	24	W.	4
Sept	29.771	29.726	29.726	29.741	30.179	10	28.987	25	1.192	53.6	62.3	56.7	57.5	81.0	16	40.2	29	40.8	67.1	50.8	1,537	2,022	1,405	4,964	34	W.	25
Oct	29.824	29.792	29.807	29.808	30.383	16	28.892	29	1.491	46.8	53.3	48.4	49.5	83.0	10	31.8	21	51.2	43.4	38.7	1,821	2,321	2,090	6,232	28	NE.	20
Nov	29.733	29.706	29.738	29.726	30.202	28	29.070	9	1.132	40.3	44.6	41.4	42 1	70.0	22	19.8	16	50.2	50.1	35.1	2,670	2,712	2,551	7,933	39	NW.	12
Dec	29.732	29.707	29.725	29.721	30.355	23	29.128	27	1.227	28.1	32.4	30.1	30.2	58.0	8	—6.0	23	64.0	37.3	22.0	2,709	2,472	2,710	7,891	33	NW.	28
Sums...	356.616	356.296	356.444	356.453	......	....	......	....	.....	516.1	586.0	536.5	546.2	....	.....	......	....	....	641.8	453.5	25,313	29,595	25,670	80,578	....	....	.....
																					Averages.						
Means .	29.718	29.691	29.704	29.704	30.383	*16	28.892	*29	.....	43.0	48.8	44.7	45.5	97.5	†22	—6.0	‡23	....	53.5	37.8	2,109.4	2,466.2	2,139.2	......	....	....	.....

* October. † August. ‡ December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	5	6	7	22	20	12	11	10	0	1.16	0.28	20, 21	9.0	8.5	7.8	8.3	11.4	16.2	12.4	13.3	68.5	68.5	64.0	67.0	0	9	22	16	16	31	0	First light frost September 11. First killing frost October 1.
Feb	1	4	4	12	17	9	17	19	1	2.76	0.88	3, 4	8.1	8.2	8.1	8.1	15.9	20.0	18.3	18.1	70.7	69.4	71.4	70.5	1	9	18	22	12	26	0	
Mar	16	5	1	9	16	6	15	23	2	0.84	0.39	10	6.6	6.5	6.1	6.4	15.8	19.7	17.6	17.7	73.0	67.8	70.8	70.5	5	13	13	16	9	30	0	
Apr	13	14	2	8	14	10	25	8	1	1.39	0.63	5, 6	6.0	5.1	5.4	5.5	30.8	31.9	31.9	31.5	74.2	61.6	70.3	68.7	7	12	11	9	1	8	0	
May	6	11	8	7	23	2	32	9	0	7.03	1.62	21	6.5	6.8	6.0	6.4	40.5	42.0	42.0	41.5	74.9	63.9	73.6	70.8	5	10	16	19	0	0	0	
June	4	2	2	15	30	5	25	5	2	4.58	1.40	18, 19	6.0	5.7	5.2	5.6	56.4	56.8	57.2	56.8	78.8	66.3	79.8	75.0	8	11	11	14	0	0	0	
July	11	5	0	5	23	7	27	12	3	8.21	1.39	12, 13	5.8	4.7	4.9	5.1	58.6	58.0	58.4	58.3	78.2	64.5	79.5	74.1	6	17	8	11	0	0	1	
Aug	10	4	5	9	19	12	21	11	2	2.16	1.45	28, 29	5.0	4.0	2.9	4.0	55.9	56.1	56.0	56.0	78.4	62.5	75.4	72.1	12	13	6	8	0	0	1	
Sept	16	4	6	14	22	5	11	7	5	2.32	0.87	24, 25	6.0	5.9	5.6	5.8	47.9	49.2	49.0	48.7	81.4	63.6	76.3	73.8	7	10	13	14	0	0	0	
Oct	11	13	2	28	22	3	7	6	1	1.94	0.81	2	7.3	7.1	6.3	6.9	38.7	40.0	38.7	39.1	73.7	62.0	69.9	68.5	3	14	14	11	0	1	0	
Nov	8	1	4	13	31	5	9	19	0	3.02	0.64	26, 27	7.8	6.8	7.4	7.3	30.4	33.1	30.8	31.4	68.8	64.9	66.8	66.7	2	9	19	18	1	10	0	
Dec	6	10	2	19	28	4	9	15	0	4.08	1.23	7, 8	8.4	8.8	8.6	8.6	19.4	22.1	20.8	20.8	69.9	65.9	68.4	68.1	0	7	24	20	9	25	0	
Sums	107	79	38	156	265	80	209	144	17	34.49	....	.....	82.5	78.1	73.8	78.0	421.7	445.1	433.1	433.2	890.5	780.9	865.7	845.8	56	134	175	178	48	131	2	
	Percentages.																								Percentages.							
Means	9.8	7.2	3.5	14.2	24.2	7.3	19.1	18.2	1.6	....	....	......	6.9	6.5	6.2	6.5	35.1	37.1	36.1	36.1	74.2	65.1	72.1	70.5	15.3	36.7	48.0	48.8	13.2	35.9	0.6	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.02 a. m., 3.02 p. m., and 11.02 p. m., local time.

Corrections for instrumental errors of barometer used: From 7.02 a. m., January 1, to 11.02 p. m., November 30, inclusive, +0.006 inch. From 7.02 a. m., December 1, to 7.02 a. m., December 13, inclusive, +0.021 inch. From 11.02 a. m., December 13, to 11.02 p. m., December 31, inclusive, +0.006 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.350; February, 0.350; March, 0.340; April, 0.340; May, 0.330; June, 0.320; July, 0.320; August, 0.320; September, 0.320; October, 0.330; November, 0.340; December, 0.350.

JULIUS G. LINSLEY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

PALESTINE, TEX.

[Latitude, 31° 45′ N.; longitude, 95° 40′ W. Magnetic variation, 9° E. Elevation of barometer above sea-level, 583 feet. Elevation of exposed thermometer above ground, 34 feet. Elevation of rain-gauge above ground, 4 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.645	29.608	29.634	29.629	30.172	22	29.312	7	.859	37.6	48.3	43.8	43.2	75.5	27	7.0	21	68.5	53.1	33.9	2,275	2,272	2,230	6,777	29	S.	30
Feb	29.703	29.674	29.702	29.693	30.183	27	29.075	28	1.108	44.0	52.8	48.5	48.4	77.5	15	13.5	5	64.0	57.5	39.4	2,167	2,365	2,369	6,901	36	S.	15
Mar	29.547	29.505	29.521	29.525	29.947	3	29.039	30	.908	50.9	64.0	58.1	57.7	79.0	28	34.0	20	45.0	68.3	49.4	2,421	2,777	2,377	7,575	36	NE.	15
Apr	29.406	29.393	29.394	29.398	29.881	16	28.888	22	.993	58.8	73.3	65.9	66.0	87.5	12	44.0	1	43.5	76.3	56.5	2,453	2,793	2,652	7,898	36	S.	22
May	29.457	29.452	29.452	29.454	29.715	6	29.213	29	.502	66.4	79.9	72.0	72.8	90.0	18	51.5	23	38.5	82.5	64.0	2,355	2,936	2,540	7,831	32	S.	17
June	29.477	29.459	29.441	29.459	29.604	1	29.156	9	.448	74.0	85.8	78.6	79.5	95.0	24	64.0	8	31.0	89.5	71.4	1,357	1,664	1,246	4,267	30	S.	10
July	29.564	29.544	29.531	29.546	29.776	18	29.347	14	.429	75.2	89.9	79.7	81.6	97.5	27	71.0	{1, 3, 5, 12, 22, 28, 29.}	26.5	92.9	73.0	1,719	2,153	1,871	5,743	27	N.	28
Aug	29.539	29.509	29.518	29.520	29.636	27	29.349	11	.287	73.0	90.6	79.7	81.1	97.0	{1, 15, 16, 19, 20, 22}	65.0	27, 30	32.0	93.0	71.6	1,569	1,611	1,534	4,714	21	NE.	23
Sept	29.545	29.507	29.521	29.524	29.679	26	29.321	13	.358	66.4	83.7	74.5	74.9	95.5	3	49.0	22	46.5	86.0	65.0	1,727	1,803	1,725	5,255	25	N.	21
Oct. [1]	29.507	29.462	29.496	29.488	29.811	24	29.160	28	.651	64.0	76.0	69.1	69.7	94.0	8	41.0	25	53.0	78.4	61.6	2,020	2,360	3,170	[2]7,550	32	W.	29
Nov	29.609	29.570	29.594	29.591	30.061	16	29.195	21	.866	54.0	66.2	59.0	59.7	82.5	9	34.5	16, 27	48.0	68.4	51.3	2,182	2,504	2,128	6,814	31	N.	26
Dec	29.601	29.560	29.602	29.588	30.118	15	29.218	26	.900	48.8	59.6	53.0	53.8	75.0	1, 5, 23	28.5	15	46.5	62.3	45.2	2,309	2,474	2,264	7,047	32	SW.	26
Sums ..	354.600	354.243	354.401	354.415	......	...	......	...	....	713.1	870.1	781.9	788.4	....	....	....	......	....	908.2	682.8	24,554	27,712	26,106	78,372	....	....	....
																					Averages.						
Means.	29.550	20.520	29.533	29.534	30.183	*27	28.888	†22	....	59.4	72.5	65.2	65.7	97.5	‡27	7.0	§21	....	75.7	56.9	2,046.2	2,309.3	2,175.5	......	....	....	....

[1] Five 7 a. m., six 3 p. m., and six 11 p. m. observations missed. [2] By dial. * February. † April. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	26	19	3	3	21	4	2	14	1	3.79	1.07	19, 20	5.8	6.7	3.7	5.4	31.0	34.1	33.2	32.8	77.9	62.5	69.7	70.0	10	11	10	14	2	11	0	
Feb	22	20	8	4	15	5	4	6	0	4.01	1.00	16	6.8	7.3	6.8	7.0	37.6	37.0	38.3	37.6	79.4	62.1	71.7	71.1	5	7	16	15	2	9	0	
Mar	12	19	8	6	26	7	3	12	0	5.85	2.27	24	7.2	5.9	5.0	6.0	43.7	42.2	44.5	43.5	77.8	49.5	63.9	63.7	7	11	13	13	0	0	0	
Apr	10	14	8	9	29	7	3	10	0	3.53	1.27	21, 22	6.4	5.1	3.9	5.1	52.7	51.1	53.7	52.5	81.4	48.9	67.3	65.9	9	16	5	10	0	0	0	
May	13	9	4	10	49	2	0	4	2	2.85	1.50	20	6.3	5.5	2.7	4.8	61.9	61.0	62.5	61.8	85.8	53.8	72.6	70.7	9	14	8	6	0	0	0	
June	1	3	3	8	39	10	0	7	19	6.33	3.68	3	5.3	6.6	2.4	4.8	70.1	70.1	71.8	70.7	87.7	61.2	80.1	76.8	8	19	3	7	0	0	16	
July	1	1	5	14	43	19	3	1	6	1.28	0.92	28, 29	4.4	6.8	2.2	4.5	71.2	69.5	71.5	70.7	87.8	52.4	76.6	72.8	11	18	2	7	0	0	27	
Aug	24	22	5	6	24	7	2	3	0	0.80	0.22	23	3.4	5.1	1.7	3.4	67.5	64.9	67.6	66.7	83.4	43.9	67.8	65.0	13	15	3	4	0	0	24	
Sept	18	24	6	4	19	6	3	9	1	1.99	1.22	15	4.4	3.8	2.5	3.6	60.3	57.2	60.4	59.3	81.5	42.8	63.1	62.5	14	14	2	5	0	0	7	
Oct[1]	8	15	10	5	28	4	3	3	0	4.47	1.81	18, 19	7.6	6.0	3.7	5.8	60.1	60.4	60.3	60.3	87.8	61.4	75.0	74.7	8	17	5	10	0	0	4	
Nov	12	20	8	9	30	6	0	5	0	7.09	5.20	10, 11	6.0	6.3	4.1	5.5	46.7	49.4	49.5	48.5	77.5	58.0	72.4	69.8	10	10	10	10	0	0	0	
Dec	19	16	4	2	26	9	0	17	0	2.50	1.83	5, 6	5.5	5.7	4.9	5.4	41.8	44.1	42.3	42.7	77.4	60.0	68.8	68.7	9	10	12	7	0	2	0	
Sums	166	182	72	80	349	86	23	91	29	43.49	.....	.....	69.1	70.8	43.6	61.3	644.6	641.0	655.6	647.1	985.4	656.5	849.2	830.2	108	162	89	108	4	22	78	
	Percentages.																								Percentages.							
Means	15.4	16.9	6.7	7.4	32.4	8.0	2.1	8.4	2.7	.....	...	.....	5.8	5.9	3.6	5.1	53.7	53.4	54.6	53.9	82.1	54.7	70.8	69.2	30.1	45.1	24.8	30.1	1.1	6.1	21.7	

[1] Five 7 a. m., six 3 p. m., and six 11 p. m. observations missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 5.45 a. m., 1.45 p. m., and 9.45 p. m., local time.

Corrections for instrumental errors of barometer used: From 5.45 a. m., January 1, to 5.45 a. m., October 15, inclusive, + 0.006 inch. From 9.45 a. m., October 15, to 9.45 p. m., December 31, inclusive, —0.001 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.580; February, 0.580; March, 0.570; April, 0.560; May, 0.550; June, 0.540; July, 0.540; August, 0.540; September, 0.550; October. 0.560; November, 0.570; December, 0.580.

P. T. JENKINS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

PENSACOLA, FLA.

[Latitude, 30° 25′ N.; longitude, 87° 13′ W. Magnetic variation, 5° 45′ E. Elevation of barometer above sea-level, 30 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 35 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.156	30.110	30.149	30.141	30.674	23	29.840	9	.834	50.5	58.7	54.2	54.5	69.3	20	30.3	10	39.0	62.0	47.9	1,503	1,798	1,252	4,553	23	SE.	18
Feb	30.228	30.194	30.234	30.219	30.623	28	29.957	23	.666	56.5	66.2	60.0	60.9	78.3	17	37.8	28	40.5	65.0	54.8	1,421	1,873	1,486	4,780	21	N.	18, 26
Mar	30.066	30.030	30.047	30.048	30.509	1	29.658	25	.851	52.0	64.8	57.1	58.0	78.2	31	40.8	23	37.4	66.9	50.2	1,714	2,213	2,075	6,002	36	E.	24
Apr	29.978	29.952	29.968	29.966	30.264	3	29.570	22	.694	65.1	74.3	67.3	68.9	87.2	24	49.0	3	38.2	76.6	62.6	1,832	2,400	2,316	6,548	28	SW.	23
May	30.027	30.000	30.016	30.014	30.206	24	29.651	20	.555	68.2	78.1	70.4	72.2	90.1	15	46.6	23	43.5	81.0	65.0	1,638	2,173	2,278	6,089	36	SE.	20
June	30.010	29.987	30.000	29.999	30.144	4	29.820	8	.324	77.8	83.9	78.5	80.1	91.8	21	70.8	2	21.0	86.3	74.7	1,459	2,142	2,154	5,755	31	S.	10
July	30.084	30.053	30.061	30.066	30.258	22	29.922	12	.336	79.3	87.2	80.3	82.3	93.3	16	72.4	5	20.9	90.0	76.2	1,253	1,989	2,094	5,836	22	N.	8
Aug	30.019	29.979	30.004	30.001	30.159	15	29.825	29	.334	77.2	86.5	79.4	81.0	92.5	4	69.5	31	23.0	89.5	74.9	1,135	1,754	1,742	4,631	20	SW.	1, 2
Sept	30.020	29.970	30.003	29.998	30.198	27	29.818	22	.380	71.6	84.1	75.9	77.2	92.4	6	59.7	25	32.7	88.7	70.5	1,281	1,784	1,508	4,573	19	W.	13
Oct	30.057	30.004	30.042	30.034	30.212	9	29.838	29	.374	67.4	80.2	72.1	73.2	88.5	15	48.7	26	39.8	81.6	66.4	1,814	2,113	1,903	5,830	24	NE., E., E.	16 17 18
Nov	30.171	30.120	30.159	30.150	30.500	16	29.926	25	.574	56.2	68.3	60.1	61.5	80.0	11	35.5	16	44.5	70.0	54.3	1,698	2,048	1,568	5,314	22	N.	1
Dec	30.154	30.110	30.150	30.138	30.433	15	29.925	26	.508	53.3	64.1	56.3	57.9	74.2	8	28.8	16	45.4	66.0	50.1	1,841	1,604	1,286	4,231	22	NW.	14
Sums	360.970	360.518	360.833	360.774	......	...	....	....	.....	775.1	896.4	811.6	827.7	....	....	.....	.....	.....	923.6	747.6	18,089	23,891	21,662	63,642	....	....	.....
																					Averages.						
Means	30.081	30.043	30.069	30.064	30.674	*23	29.570	†22	.....	64.6	74.7	67.6	69.0	93.3	‡10	28.8	§16	....	77.0	62.3	1,507.4	1,990.9	1,805.2	......	....	....	.....

* January. † April. ‡ July. § December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	21	18	14	6	10	7	1	6	10	9.97	3.08	17, 18	4.9	5.4	4.3	4.9	44.8	47.0	47.4	46.4	82.3	69.8	79.9	77.3	8	18	5	15	0	1	0	
Feb	25	10	9	23	3	5	0	1	8	2.12	1.10	24, 25	5.3	6.7	3.2	5.1	51.9	55.3	55.2	54.1	85.9	72.8	85.6	81.4	10	10	8	9	0	0	0	
Mar	15	13	5	10	18	17	5	9	1	3.26	1.61	7, 8	5.7	4.5	2.8	4.3	45.1	46.6	50.0	47.2	78.9	56.0	78.3	71.1	13	12	6	6	0	0	0	
Apr	16	3	7	15	22	15	5	7	0	6.74	2.17	4	5.7	4.5	4.1	4.8	60.6	60.9	61.5	61.0	86.2	67.7	82.6	78.8	11	11	8	18	0	0	0	
May	10	4	4	13	35	9	4	14	0	7.47	3.82	30	4.6	5.4	2.2	4.1	61.2	62.4	62.2	61.9	79.1	60.6	76.3	72.0	10	16	5	6	0	0	1	
June	5	8	5	17	21	29	5	5	0	9.36	2.67	10, 11	4.8	5.9	4.2	5.0	78.2	74.0	78.5	73.6	86.2	73.0	85.1	81.4	9	14	7	16	0	0	4	
July	7	8	3	9	20	37	11	3	0	3.29	0.79	3, 4	2.6	3.9	1.4	2.6	73.6	74.1	72.9	73.5	83.2	65.6	79.1	76.0	18	13	0	11	0	0	16	
Aug	7	7	8	10	28	14	7	9	3	8.75	2.16	26	4.2	5.3	3.2	4.2	72.5	73.0	72.8	72.8	85.8	65.0	80.5	77.1	11	17	3	11	0	0	16	
Sept	13	14	10	11	21	6	3	9	3	0.32	0.23	23	4.6	4.0	2.2	3.6	64.6	67.3	67.6	66.5	79.3	58.7	76.1	71.4	12	15	3	5	0	0	3	
Oct	16	13	15	5	16	17	2	8	1	1.91	0.91	25	3.2	3.9	2.3	3.1	62.6	66.1	64.0	64.2	85.4	63.9	76.8	75.4	18	9	4	3	0	0	0	
Nov	29	23	11	13	12	2	0	0	0	3.06	1.74	25, 26	5.2	4.2	3.7	4.4	46.9	48.3	49.3	48.2	74.0	56.5	71.2	67.2	10	12	8	7	0	0	0	
Dec	23	19	14	9	7	5	4	3	9	5.30	1.75	7, 8	5.3	5.6	4.1	5.0	47.4	51.3	49.2	49.3	81.7	67.0	78.9	75.9	9	13	9	9	0	1	0	
Sums	187	130	105	141	213	163	47	74	35	61.55	....	.....	56.1	59.3	37.7	51.1	704.4	726.3	725.6	718.7	988.0	776.6	950.4	905.0	189	160	66	111	0	2	40	
	Percentages.																								Percentages.							
Means	17.1	11.9	9.6	12.9	19.5	14.9	4.3	6.8	3.2	.....	....	......	4.7	4.9	3.1	4.2	58.7	60.5	60.5	59.9	82.3	64.7	79.2	75.4	38.1	43.8	18.1	30.4	0	0.5	11.0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.19 a. m., 2.19 p. m., and 10.19 p. m., local time.

Correction for instrumental error of barometer used: From 6.19 a. m., January 1, to 10.19 p. m., December 31, inclusive, +.004 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.030; February, 0.030; March, 0.030; April, 0.030; May, 0.030; June, 0.030; July, 0.030; August, 0.030; September, 0.030; October, 0.030; November, 0.030; December, 0.030.

M. McGAURAN,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PHILADELPHIA, PA.

[Latitude, 39° 57′ N.; longitude, 75° 9′ W. Magnetic variation, 5° 30′ W. Elevation of barometer above sea-level, 92 feet. Elevation of exposed thermometer above ground, 54 feet. Elevation of rain-gauge above ground, 106 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.117	30.079	30.108	30.101	30.541	24	29.467	10	1.074	28.2	32.6	29.5	30.1	48.0	31	9.0	24	39.0	36.5	24.8	1,856	2,189	1,989	6,034	28	NW., W.	14 21
Feb	30.186	30.159	30.186	30.177	30.681	2	29.620	7	1.061	34.0	39.7	36.2	36.6	60.0	4	20.0	2, 27	40.0	43.2	30.8	1,609	1,837	1,540	4,986	22	NW.	4, 21
Mar	29.928	29.849	29.899	29.892	30.418	8	29.169	10	1.249	33.0	42.8	37.1	37.6	68.0	19	13.5	8	54.5	46.0	30.0	1,651	2,315	1,953	5,919	28	NW.	5, 20
Apr	29.946	29.900	29.946	29.931	30.360	14	29.550	20	.810	46.0	55.3	48.6	50.0	72.0	19	27.0	1	45.0	57.8	43.8	1,619	2,255	1,827	5,701	24	N. N. NW. NE.	17 18 20 29
May	29.912	29.858	29.888	29.886	30.271	1	29.356	21	.915	57.4	70.3	59.6	62.4	84.0	26	42.0	1	42.0	71.7	53.2	1,677	2,131	1,990	5,798	24	NW.	15
June	29.926	29.882	29.907	29.905	30.375	2	29.554	11	.821	69.7	80.4	70.8	73.7	89.5	10	51.5	3	38.0	81.9	66.0	1,224	1,898	1,795	4,917	26	SW., W.	7, 11
July	29.930	29.879	29.903	29.904	30.158	21	29.648	13	.510	72.0	82.6	73.7	76.1	94.0	7	56.0	1	38.0	84.3	68.4	1,235	2,003	1,779	5,017	22	NE., NW.	8, 23
Aug	29.978	29.931	29.956	29.955	30.200	15	29.602	2	.598	67.8	78.3	70.2	71.9	90.0	{20 {23	57.5	28	32.5	79.7	65.1	1,144	2,098	1,438	4,680	18	SW.	19
Sept	30.021	29.903	29.992	29.992	30.371	10	29.441	24	.930	59.9	71.2	62.4	64.5	82.5	17	44.8	10	37.7	72.5	57.8	1,566	2,184	1,752	5,502	26	NE.	12
Oct	30.104	30.043	30.085	30.077	30.565	16	29.319	29	1.246	51.1	60.9	53.9	55.3	81.5	14	37.5	16	44.0	62.7	49.2	1,578	1,970	1,702	5,250	26	SW., W.	30
Nov	30.102	30.047	30.075	30.075	30.542	17	29.654	11	.888	43.9	51.7	46.5	47.4	72.8	22	25.0	16	47.8	54.5	41.8	1,441	2,070	1,573	5,084	32	W.	18
Dec	30.044	30.066	30.066	30.029	30.579	23	29.407	27	1.172	34.6	40.0	36.7	37.1	57.3	8	10.0	23	47.3	43.5	31.8	1,475	1,841	1,510	4,826	28	NW.	28
Sums ..	360.194	359.596	359.981	359.924		..	......	...	......	597.1	705.8	625.2	642.7	...	......	......	....	....	734.3	562.7	18,075	24,791	20,848	63,714	....	....	....
																					Averages.						
Means	30.016	29.966	29.908	29.993	30.681	*2	29.169	†10	......	49.8	58.8	52.1	53.6	94.0	‡7	9.0	§24	....	61.2	46.9	1,506.2	2,065.9	1,737.3	......	....	....	....

* February. † March. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from— North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. ● Total amount.	Any 3 consecutive 8 hourly measurements. Largest amount.	Date.	Washington time. Cloudiness (in tenths). 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	Remarks.
1883.										*In.*	*In.*						°	°	°	°												
Jan	11	26	1	2	1	22	7	22	1	4.13	0.80	20, 21	6.4	7.6	6.5	6.8	22.0	23.8	24.4	23.4	78.1	70.9	81.6	76.9	3	12	16	16	9	24	0	
Feb	3	9	5	8	2	18	17	22	5	5.04	1.34	10, 11	6.8	6.5	4.6	6.0	25.4	27.1	28.9	27.1	70.6	61.4	75.5	69.2	4	14	10	13	1	16	0	
Mar	8	11	2	6	5	18	7	32	4	2.02	0.79	30	4.5	3.6	3.4	3.8	23.8	29.3	26.6	26.6	69.3	60.2	65.7	65.1	11	17	3	7	2	15	0	
Apr	13	21	5	5	7	17	4	18	0	2.44	0.75	28, 29	6.2	4.8	5.2	5.4	41.0	45.6	43.7	43.4	83.5	72.0	83.8	79.8	7	15	8	15	0	1	0	
May	7	20	5	10	7	17	13	14	0	1.91	1.02	21, 22	4.3	3.7	4.3	4.1	53.1	60.5	55.5	56.4	86.0	71.8	86.8	81.5	12	14	5	10	0	0	0	
June	6	6	5	15	13	26	10	9	0	5.91	1.07	27	4.5	4.6	4.1	4.4	67.1	72.7	67.3	69.0	91.4	77.8	88.8	86.0	10	15	5	13	0	0	0	
July	6	10	0	2	14	36	9	16	0	1.78	1.10	8, 9	3.5	4.5	2.8	3.6	67.0	71.6	69.3	69.3	84.6	70.0	86.6	80.4	14	13	4	8	0	0	7	
Aug	15	21	5	2	4	19	7	18	2	3.40	2.36	2	3.4	3.9	1.7	3.0	63.1	68.8	66.8	66.2	86.7	73.5	89.3	83.2	19	9	3	5	0	0	0	
Sept	15	24	4	4	6	20	5	12	0	4.24	1.19	24	5.0	4.9	5.0	5.0	56.8	61.6	59.1	59.2	89.7	72.6	89.2	83.8	8	15	7	10	0	0	0	
Oct	13	32	7	6	5	11	4	14	1	4.20	1.94	23, 24	4.9	5.7	4.4	5.0	46.7	50.8	49.0	48.8	85.4	70.8	83.9	80.0	12	10	9	13	0	0	0	
Nov	4	11	1	2	9	31	7	17	8	1.34	0.45	26	3.7	4.6	3.4	3.9	37.2	39.9	39.2	38.8	77.5	65.5	76.9	73.3	16	6	8	9	0	4	0	
Dec	8	14	4	4	4	20	6	26	7	2.76	1.15	23, 24	5.9	5.8	4.4	5.4	29.3	32.0	30.8	30.7	80.6	73.6	79.8	78.0	7	14	10	11	3	14	0	
Sums	109	205	44	66	77	250	96	220	28	39.17	....	......	59.1	60.2	49.8	56.4	532.5	583.7	560.6	558.9	983.4	840.1	987.9	937.2	123	154	88	130	15	74	7	
	Percentages.																								Percentages.							
Means	9.9	18.8	4.0	6.0	7.0	22.9	8.8	20.0	2.6	.....	....	......	4.9	5.0	4.2	4.7	44.4	48.6	46.7	46.6	82.0	70.0	82.3	78.1	34	42	24	35.6	4.1	20.3	1.9	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.08 a. m., 3.08 p. m., and 11.08 p. m., local time.

Correction for instrumental error of barometer used: From 7.08 a. m., January 1, to 11.08 p. m., December 31, inclusive, +.008 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.110; February, 0.110; March, 0.100; April, 0.100; May, 0.100; June, 0.100; July, 0.100; August, 0.100; September, 0.100; October, 0.100; November, 0.100; December, 0.110.

T. F. TOWNSEND,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PIKE'S PEAK, COLO.

[Latitude, 38° 50′ N.; longitude, 105° 2′ W. Magnetic variation 14° 30′ E. Elevation of barometer above sea-level, 14,134 feet. Elevation of exposed thermometer above ground, 5 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	17.442	17.458	17.473	17.458	17.856	23	16.925	20	.931	—3.8	0.5	—2.3	—1.9	21.0	9	-37.0	20	58.0	5.5	—9.9	3,150	3,260	3,128	[1]9,538	72	N. E.	2
Feb	17.582	17.593	17.617	17.598	18.013	27	17.079	2	.934	2.1	7.5	3.6	4.4	26.0	21	—27.0	16	53.0	11.3	—2.4	......	......	......	([2])	......	....	....
Mar	17.692	17.719	17.711	17.707	18.055	2	17.407	31	.648	10.2	17.0	11.8	13.0	29.0	27	— 3.0	19	32.0	19.1	7.4	2,555	1,070	1,598	[3]5,223	76	N. W.	18
Apr	17.569	17.621	17.626	17.605	17.985	16	16.887	21	1.098	8.6	16.6	11.1	12.1	29.5	17	—13.0	15	42.5	19.4	4.7	864	1,054	1,184	[4]3,102	45	S. W.	28
May	17.740	17.788	17.800	17.776	18.045	20	17.260	17	.785	15.0	23.9	19.1	19.5	36.0	7	3.0	3	33.0	27.0	13.0	6,199	4,427	5,136	16,702	78	S. W.	8
June	17.980	18.007	18.009	17.999	18.231	29	17.715	9	.516	28.0	35.4	30.5	31.3	52.0	23	13.0	8, 13	39.0	38.8	25.2	[5]5,521	[5]4,371	[5]4,794	[6]14,915	80	S. W.	14
July	18.106	18.132	18.126	18.121	18.283	18	17.985	13	.298	35.5	44.2	37.7	39.1	57.0	23	29.0	6, 8	28.0	47.0	34.0	3,926	3,368	3,082	10,376	53	W.	29
Aug	18.147	18.166	18.161	18.158	18.291	28	18.042	11	.249	34.9	43.4	38.0	38.8	53.0	30	31.0	3, 4, 12	22.0	46.2	33.9	3,786	2,784	2,698	9,268	48	W.	17
Sept	18.054	18.060	18.062	18.062	18.283	4	17.808	23	.475	27.0	35.0	28.6	30.2	49.0	2	7.0	22	42.0	36.7	24.6	[7]3,881	[7]3,276	[7]3,120	[6]10,817	52	S. W.	1
Oct	17.718	17.736	17.743	17.732	17.981	5	17.335	28	.646	13.5	20.1	15.7	16.4	33.0	2, 7	— 5.0	28	38.0	22.2	10.4	[8]6,246	[8]5,359	[8]6,020	[6]18,132	72	W.	1
Nov	17.727	17.731	17.724	17.727	18.116	29	17.308	22	.808	11.2	17.3	12.8	13.8	31.0	30	—13.0	26	44.0	18.6	7.9	[9]5,705	[9]5,021	[9]5,978	[6]17,062	84	W.	24
Dec	17.618	17.629	17.649	17.632	18.029	10	17.261	18	.768	7.5	10.5	6.4	8.1	28.0	1	—32.0	31	60.0	13.2	2.2	[10]5,789	[10]5,672	[10]5,927	[6]17,409	96	W.	25
Sums...	213.375	213.649	213.701	213.575	......	...	......	...	......	190.3	271.4	213.0	224.8	..	....	......	......	....	305.0	151.0	......	......	......	......	....	....	....
																					Averages.						
Means .	17.781	17.804	17.802	17.798	18.291	*28	16.887	†21	.....	15.9	22.6	17.8	18.8	57.0	‡23	—37.0	§20	....	25.4	12.6	......	......	......	......	....	....	....

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[1] For 15⅝ days.
[2] Anemometer broken.
[3] For 15⅓ days.
[4] For 7⅝ days.
[5] 229 miles lost by self-register.
[6] By dial.
[7] 540 miles lost by self-register.
[8] 507 miles lost by self-register.
[9] 358 miles lost by self-register.
[10] 21 miles lost by self-register.

*August. †April. ‡July. §January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent.).				Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
											Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.								
1883.										In.	In.						°	°	°	°												
Jan	8	11	0	0	0	20	23	31	0	.54	.20	29, 30	3.8	5.5	4.9	4.7	—8.5	—4.5	—6.8	—6.6	81.9	81.8	83.1	82.3	12	11	8	9	31	31	0	
Feb	6	8	0	0	3	42	14	11	0	.49	.15	22, 23	3.2	3.6	2.7	3.2	—2.0	2.3	0.3	0.2	84.4	79.9	87.3	83.9	13	12	3	8	28	28	0	
Mar	10	15	1	0	3	24	15	19	6	.61	.27	31	3.4	5.4	3.1	4.0	4.7	12.1	7.7	8.2	80.0	80.6	83.5	81.4	12	15	4	10	31	31	0	
Apr	7	8	0	0	5	37	14	19	0	1.68	.21	22, 23	4.5	6.7	4.6	5.2	4.8	12.6	7.7	8.4	86.1	84.5	86.5	85.7	6	18	6	18	30	30	0	
May	4	10	0	2	0	42	10	25	0	2.80	.70	19	3.5	6.6	4.5	4.9	12.7	19.3	14.9	15.6	87.8	82.5	83.5	84.6	8	17	6	15	25	31	0	
June	8	14	1	5	3	40	9	10	0	1.76	.68	11, 12	1.6	5.9	2.8	3.3	22.7	29.0	26.1	25.9	80.6	78.9	84.7	81.4	19	8	3	9	6	19	0	
July	6	22	1	4	4	30	15	11	0	5.37	1.30	6, 7	1.4	6.1	4.6	4.1	27.8	31.8	29.8	29.8	75.2	69.1	74.9	71.7	8	22	1	19	0	5	0	
Aug	8	16	3	7	6	32	10	11	0	2.22	.58	1, 2	1.7	5.1	3.6	3.4	28.4	31.6	30.8	30.3	77.7	65.7	77.0	73.5	13	17	1	13	0	3	0	
Sept	7	30	0	1	3	27	8	14	0	1.76	.62	13, 14	1.0	4.8	2.7	2.8	21.8	26.5	23.3	23.9	80.6	71.6	80.6	77.6	16	13	1	12	5	26	0	
Oct	3	0	0	2	2	39	29	18	0	.15	.05	27	2.3	3.4	1.6	2.4	9.3	15.9	11.5	12.2	83.0	83.1	83.2	83.1	19	11	1	7	29	31	0	
Nov	5	7	2	0	1	17	38	18	2	.07	.03	20	1.1	3.6	0.8	1.8	3.9	10.8	7.3	7.3	72.3	75.5	78.4	75.4	23	7	0	4	30	30	0	
Dec	10	13	6	0	3	14	23	22	2	.72	.36	23	3.4	4.3	2.4	3.4	2.5	5.5	1.8	3.3	80.5	80.1	81.3	80.6	12	17	2	8	31	31	0	
Sums	82	154	14	21	33	364	208	209	10	18.17	...	......	30.9	61.0	38.3	43.2	128.1	192.9	154.4	158.5	970.1	929.3	984.0	961.2	161	168	36	132	246	296	0	
	Percentages.																								Percentages.							
Means	7.5	14.1	1.3	1.9	3.0	33.2	19.0	19.1	0.9	.....	...	......	2.6	5.1	3.2	3.6	10.7	16.1	12.9	13.2	80.8	77.4	82.0	80.1	44.1	46.0	9.9	36.2	67.4	81.1	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.07 a. m., 1.07 p. m., and 9.07 p. m., local time.

Correction for instrumental error of barometer used: From 5.07 a. m., January 1, to 9.07 p. m., December 31, inclusive, +.043 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 12.70; February, 12.73; March, 12.59; April, 12.28; May, 12.06; June, 11.82; July, 11.78; August, 11.79; September, 11.98; October, 12.28; November, 12.66; December, 12.66.

H. HALL,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PIOCHE, NEV.

[Latitude, 37° 56′ N.; longitude, 114° 26′ W. Magnetic variation, 16° E. Elevation of barometer above sea-level, 6,110 (B) feet. Elevation of exposed thermometer above round, 9 feet. Elevation of rain-gauge above ground, 23 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	24.057	24.051	24.049	24.052	24.458	8	23.618	17	.840	20.2	36.3	28.0	28.2	55.4	31	—16.5	20	71.9	39.4	16.5	1,287	1,385	1,956	4,628	32	N.	7
Feb	23.996	24.012	24.016	24.009	24.492	17	23.829	1	1.163	21.5	37.6	28.6	29.2	57.0	21, 22	— 1.0	5	58.0	40.2	18.2	1,409	1,609	1,819	4,835	31	SE.	14
Mar	24.015	24.015	24.005	24.012	24.310	2	23.664	29	.646	37.5	55.4	45.0	46.0	68.5	21	26.0	19	42.5	57.9	34.0	1,254	1,708	2,048	5,010	27	N.	18
Apr	23.890	23.907	23.900	23.899	24.374	15	23.436	20	.938	33.9	50.3	42.0	42.1	68.0	29	17.2	13	50.8	53.9	30.5	1,446	2,133	2,404	5,983	36	N.	21
May.....	23.986	23.987	23.969	23.981	24.325	20	23.736	1	.589	43.5	63.0	52.9	53.1	84.0	27	25.0	2	59.0	66.8	39.6	1,439	2,315	2,658	6,412	34	S.	5
June [1] ...	24.053	24.039	24.021	24.038	24.255	6	23.830	11	.425	54.8	73.1	64.1	64.0	86.0	10	37.0	15	49.0	77.0	50.8	838	1,114	1,264	3,216	23	S.	14
July.....	......	......	......	......	......	...	......	...	......	...	......	......	......	...	...	......	...	...	......	......	......	......	......	......	...	......	...
Aug.....	......	......	......	......	......	...	......	...	......	...	......	......	......	...	...	......	...	...	......	......	......	......	......	......	...	......	...
Sept	......	......	......	......	......	...	......	...	......	...	......	......	......	...	...	......	...	...	......	......	......	......	......	......	...	......	...
Oct	......	......	......	......	......	...	......	...	......	...	......	......	......	...	...	......	...	...	......	......	......	......	......	......	...	......	...
Nov	......	......	......	......	......	...	......	...	......	...	......	......	......	...	...	......	...	...	......	......	......	......	......	......	...	......	...
Dec	......	......	......	......	......	...	......	...	......	...	......	......	......	...	...	......	...	...	......	......	......	......	......	......	...	......	...
Sums..	......	......	......	......	......	...	......	...	......	...	......	......	......	...	...	......	...	...	......	......	......	......	......	......	...	......	...
																					Averages.						
Means	......	......	......	......	......	...	......	...	......	...	......	......	......	...	...	......	...	...	......	......	......	......	......	......	...	......	...

[1] Fifteen days; station closed June 15, 1883.

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from— North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. Total amount.	Any 3 consecutive 8 hourly measurements. Largest amount.	Date.	Washington time. Cloudiness (in tenths). 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	Remarks.
1883.										*In.*	*In.*						°	°	°	°												
Jan	22	3	0	1	22	13	8	22	2	.20	.07	4	3.3	4.6	1.4	3.1	11.8	16.2	14.0	14.0	69.4	45.8	56.3	57.2	17	11	3	4	6	29	0	
Feb	15	1	0	4	24	4	2	29	5	.28	.09	13	1.8	3.3	2.6	2.6	13.1	15.5	16.6	15.1	70.2	44.2	61.9	58.8	17	8	3	6	7	27	0	
Mar	18	6	1	3	32	10	5	15	3	.59	.21	23, 24	3.8	5.6	3.5	4.3	25.1	22.8	25.1	24.3	61.7	31.1	47.8	46.9	13	8	10	7	0	8	0	
Apr	21	3	0	6	35	4	8	12	1	1.15	.40	12	3.7	5.7	2.9	4.1	22.7	21.6	22.5	22.3	65.6	37.6	48.8	50.7	9	17	4	6	0	19	0	
May	18	2	1	4	37	7	2	20	2	.33	.15	1	3.6	4.3	2.6	3.5	28.5	34.2	31.3	31.3	57.7	36.3	45.5	46.5	13	13	5	5	0	4	0	
June[1]	19	2	0	1	12	3	0	8	0	.48	.45	15	3.3	2.8	3.5	3.2	31.4	29.8	29.5	30.2	43.1	23.9	30.6	32.5	8	6	1	2	0	0	0	
July	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Aug	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Sept	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Oct	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Nov	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Dec	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
Sums ..	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	
	Percentages.																								Percentages.							
Means .	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	

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[1] Station closed June 15, 1883.

NOTE.—7 a. m., 3 p. m., and 11 p m., Washington time, correspond with 4.30 a. m., 12.30 p. m., and 8.30 p. m., local time.

Correction for instrumental error of barometer used: From 4.30 a. m., January 1, to 3.30 p. m., June 15, inclusive, +.003 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 6.20; February, 6.16; March, 6.14; April, 5.99; May, 5.92; June, 5.80; July, 5.73; August, 5.70; September, 5.78; October, 5.92; November, 6.14; December, 6.17.

F. R. DAY,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PITTSBURG, PA.

[Latitude, 40° 32′ N.; longitude, 80° 2′ W. Magnetic variation, 1° 15′ W. Elevation of barometer above sea-level, 766 feet. Elevation of exposed thermometer above ground, 88 feet. Elevation of rain-gauge above ground, 86 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.324	29.293	29.296	29.304	29.740	23	28.752	10	.988	25.8	31.6	28.3	28.6	54.0	21, 30	1.0	23	53.0	35.9	20.8	1,267	1,630	1,873	4,270	25	W.	21
Feb	29.419	29.398	29.396	29.404	29.790	2	28.919	7	.871	31.9	38.3	35.2	35.1	76.5	16	13.0	2, 27	63.5	43.7	25.9	1,406	1,770	1,424	4,600	24	W.	25
Mar	29.188	29.139	29.195	29.174	29.677	7	28.576	10	1.101	30.8	40.0	32.7	34.5	69.0	18	11.0	5	58.0	48.4	24.7	1,496	2,151	1,787	5,434	25	W.	12
Apr	29.194	29.134	29.188	29.172	29.473	4	28.825	23	.648	44.4	57.6	48.9	50.3	86.0	14	26.5	1	59.5	60.8	40.8	828	1,618	1,267	3,713	24	W.	11
May	29.168	29.123	29.145	29.145	29.467	6	28.521	21	.946	54.7	69.0	58.4	60.7	90.0	4	39.0	17	51.0	72.5	50.3	876	1,755	1,337	3,968	26	SW.	10
June[1] ...	29.190	29.144	29.166	29.167	29.552	1	28.851	10	.701	64.9	78.8	67.9	70.5	90.0	5, 17	48.5	14	41.5	81.0	61.8	836	1,694	1,283	3,815	24	W.	11
July	29.247	29.200	29.226	29.224	29.424	21	28.914	12	.510	67.1	81.2	70.1	72.8	96.0	3, 5	53.5	1	42.5	84.4	63.6	801	1,654	1,338	2,793	20	SW.	23
Aug	29.289	29.242	29.266	29.266	29.470	7	28.968	2	.502	62.0	79.1	67.1	69.4	94.0	22	51.5	6	42.5	80.9	59.9	606	1,355	1,130	3,091	17	SW.	2
Sept.....	29.307	29.239	29.274	29.273	29.625	10	28.801	24	.824	56.7	70.9	60.7	62.8	93.0	16	39.4	9	53.6	74.0	53.5	462	1,179	924	2,565	27	SW.	24
Oct	29.328	29.288	29.317	29.311	29.785	16	28.607	2	1.178	50.8	61.5	53.6	55.3	85.5	10	33.5	16	52.0	63.7	47.5	823	1,472	1,181	3,476	28	SW.	29
Nov	29.347	29.293	29.329	29.323	29.783	16	28.870	9	.913	42.1	52.0	45.7	46.6	73.0	9	15.3	16	57.7	55.3	38.0	1,561	2,105	1,728	5,394	21	NW.	12
Dec	29.284	29.251	29.274	29.270	29.640	22	28.762	27	.878	33.3	41.2	35.6	36.7	64.0	7	15.0	16	49.0	44.6	28.1	1,481	1,816	1,730	5,030	22	W.	28
Sums..	351.285	350.744	351.072	351.033	......	...	......	...	......	564.5	701.2	604.2	623.3	...	......	...	......	....	740.2	514.9	14,443	20,202	16,504	49,149	...	....	...
																					Averages.						
Means.	29.274	29.229	29.256	29.253	29.790	*2	28.521	†21	......	47.0	58.4	50.4	51.9	96.0	‡3, 5	1.0	§23	....	61.7	42.9	1,036.9	1,683.5	1,375.8	......	...	....	...

[1] One 11 p. m. observation missed.

* February. † May. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	13	6	3	11	18	16	14	9	3.22	0.74	27, 28	8.7	7.5	6.4	7.5	21.5	24.2	23.1	22.9	83.6	74.5	81.2	79.8	3	10	18	18	8	26	0	
Feb	5	7	9	2	9	13	20	14	5	4.92	1.35	6, 7	6.9	6.9	5.7	6.5	26.3	26.8	28.0	27.0	79.8	63.6	74.7	72.7	4	14	10	17	2	22	0	
Mar	11	14	2	4	9	15	11	26	1	2.51	1.01	30	6.3	6.5	4.2	5.7	24.2	26.1	23.0	24.4	76.9	59.5	68.2	68.2	7	14	10	15	4	24	0	
Apr	10	18	7	3	12	6	6	20	8	3.69	1.04	23	5.5	6.7	4.6	5.6	36.8	38.6	39.4	38.3	75.8	53.5	71.3	66.7	10	10	10	14	0	4	0	
May	5	9	5	4	16	18	10	15	11	5.38	1.30	14, 15	6.1	5.9	3.6	5.2	45.0	47.4	48.2	46.9	71.6	50.2	70.7	64.2	10	12	9	14	0	0	0	
June[1]	7	6	3	8	26	10	16	7	7	4.73	1.23	18, 19	5.1	4.8	3.6	4.5	59.0	59.4	59.8	59.4	81.5	53.0	76.1	70.2	11	13	5	18	0	0	0	
July	9	5	2	1	17	20	12	22	5	5.52	1.44	23, 24	4.1	5.2	2.6	4.0	61.6	61.4	62.0	61.7	83.2	52.6	76.3	70.7	14	13	4	11	0	0	8	
Aug	14	16	9	2	3	6	15	20	8	3.40	1.84	28	3.9	4.6	3.2	3.9	57.4	56.3	59.2	57.6	85.3	47.2	75.6	69.4	14	13	4	10	0	0	2	
Sept	10	8	5	5	6	9	4	11	32	2.47	0.78	28	5.6	6.2	4.8	5.5	50.9	51.2	51.7	51.3	81.5	52.1	73.5	69.0	8	12	10	12	0	0	1	First ice and first frost Sept. 10th.
Oct	9	24	10	4	10	9	8	14	5	2.43	0.87	28, 29	6.1	7.0	4.7	5.9	44.8	46.2	46.4	45.8	80.5	59.0	77.3	72.3	6	13	12	10	0	0	0	
Nov	4	4	6	8	24	13	17	11	3	1.50	0.29	9, 26	6.0	6.6	4.4	5.7	34.7	38.1	36.4	36.4	75.6	61.2	71.1	69.3	7	13	10	9	1	9	0	First snow Nov. 1st; first killing frost, 15th.
Dec	8	11	5	4	18	12	20	14	1	3.40	1.47	23, 24	7.7	7.6	5.8	7.0	29.4	32.8	30.7	31.0	85.6	74.0	82.4	80.7	8	10	18	19	7	20	0	
Sums ..	100	135	69	48	161	144	155	188	95	43.17	....	.....	72.0	75.5	53.6	67.0	491.6	508.5	507.9	502.7	960.4	700.4	898.4	853.2	97	147	120	167	22	105	11	
	Percentages.																								Percentages.							
Means .	9.1	12.3	6.3	4.4	14.7	13.2	14.2	17.2	8.7	.....	..	......	6.0	6.3	4.5	5.6	41.0	42.4	42.3	41.9	80.0	58.4	74.9	71.1	26.6	40.4	33.0	45.8	6.0	28.8	3.0	

[1] One 11 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.48 a. m., 2.48 p. m., and 10.48 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.48 a. m., January 1, to 6.48a. m., December 26, inclusive, +.009 inch; from 10.48 a. m., December 26, to 10.48 p. m., December 31, inclusive, +.006 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.850; February, 0.860; March, 0.850; April, 0.880; May, 0.800; June, 0.790; July, 0.790; August, 0.790; September, 0.790; October, 0 820; November, 0.860; December, 0.860.

J. N. RYKER,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PITTSBURG, PA.

[Latitude, 40° 32′ N.; longitude, 80° 2′ W. Magnetic variation, 1° 15′ W. Elevation of barometer above sea-level, 766 feet. Elevation of exposed thermometer above ground, 88 feet. Elevation of rain-gauge above ground, 86 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles.	Miles.			
Jan	29.324	29.293	29.296	29.304	29.740	23	28.752	10	.988	25.8	31.6	28.3	28.6	54.0	21, 30	1.0	23	53.0	35.9	20.8	1,267	1,630	1,373	4,270	25	W.	21
Feb	29.419	29.398	29.396	29.404	29.790	2	28.919	7	.871	31.9	38.3	35.2	35.1	70.5	16	13.0	2, 27	63.5	43.7	25.9	1,406	1,770	1,424	4,600	24	W.	25
Mar	29.188	29.139	29.195	29.174	29.677	7	28.576	10	1.101	30.8	40.0	32.7	34.5	69.0	18	11.0	5	58.0	43.4	24.7	1,496	2,151	1,787	5,434	25	W.	12
Apr	29.194	29.134	29.188	29.172	29.473	4	28.825	23	.648	44.4	57.6	48.9	50.3	86.0	14	26.5	1	59.5	60.8	40.8	828	1,618	1,267	3,713	24	W.	11
May	29.168	29.123	29.145	29.145	29.467	6	28.521	21	.946	54.7	69.0	58.4	60.7	90.0	4	39.0	17	51.0	72.5	50.3	876	1,755	1,337	3,968	26	SW.	10
June[1] ...	29.190	29.144	29.166	29.167	29.552	1	28.851	10	.701	64.9	78.8	67.9	70.5	90.0	5, 17	48.5	14	41.5	81.0	61.8	836	1,694	1,283	3,815	24	W.	11
July	29.247	29.200	29.226	29.224	29.424	21	28.914	12	.510	67.1	81.2	70.1	72.8	96.0	3, 5	53.5	1	42.5	84.4	63.6	801	1,654	1,338	2,793	20	SW.	23
Aug	29.289	29.242	29.266	29.266	29.470	7	28.968	2	.502	62.0	79.1	67.1	69.4	94.0	22	51.5	6	42.5	80.9	59.9	606	1,355	1,130	3,091	17	SW.	2
Sept.....	29.307	29.239	29.274	29.273	29.625	10	28.801	24	.824	56.7	70.9	60.7	62.8	93.0	16	39.4	9	53.6	74.0	53.5	462	1,179	924	2,565	27	SW.	24
Oct	29.328	29.288	29.317	29.311	29.785	16	28.607	2	1.178	50.8	61.5	53.6	55.3	85.5	10	33.5	16	52.0	63.7	47.5	823	1,472	1,181	3,476	28	SW.	29
Nov	29.347	29.293	29.329	29.323	29.783	16	28.870	9	.913	42.1	52.0	45.7	46.6	73.0	9	15.3	16	57.7	55.3	38.0	1,561	2,105	1,728	5,394	21	NW.	12
Dec	29.284	29.251	29.274	29.270	29.640	22	28.762	27	.878	33.3	41.2	35.6	36.7	64.0	7	15.0	16	49.0	44.6	28.1	1,481	1,816	1,730	5,030	22	W.	28
Sums..	351.285	350.744	351.072	351.033	......	...	......	...	......	564.5	701.2	604.2	623.3	...	......	......	......	....	740.2	514.9	14,443	20,202	16,504	49,149	....	....	....
																					Averages.						
Means.	29.274	29.229	29.256	29.253	29.790	*2	28.521	†21	......	47.0	58.4	50.4	51.9	96.0	‡3, 5	1.0	§23	....	61.7	42.9	1,036.9	1,683.5	1,375.8	......	....	....	....

[1] One 11 p. m. observation missed. * February. † May. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	18	6	3	11	13	16	14	9	3.22	0.74	27, 28	8.7	7.5	6.4	7.5	21.5	24.2	23.1	22.9	88.6	74.5	81.2	79.8	3	10	18	18	8	26	0	
Feb	5	7	9	2	9	13	20	14	5	4.92	1.35	6, 7	6.9	6.9	5.7	6.5	26.3	26.8	28.0	27.0	79.8	63.6	74.7	72.7	4	14	10	17	2	22	0	
Mar	11	14	2	4	9	15	11	26	1	2.51	1.01	30	6.3	6.5	4.2	5.7	24.2	26.1	23.0	24.4	76.9	59.5	68.2	68.2	7	14	10	15	4	24	0	
Apr	10	18	7	3	12	6	6	20	8	3.69	1.04	23	5.5	6.7	4.6	5.6	36.8	38.6	39.4	38.8	75.8	53.5	71.3	66.7	10	10	10	14	0	4	0	
May	5	9	5	4	16	18	10	15	11	5.38	1.30	14, 15	6.1	5.9	3.6	5.2	45.0	47.4	48.2	46.9	71.6	50.2	70.7	64.2	10	12	9	14	0	0	0	
June[1]	7	6	3	8	26	10	16	7	7	4.73	1.23	18, 19	5.1	4.8	3.6	4.5	59.0	59.4	59.8	59.4	81.5	53.0	76.1	70.2	11	13	5	18	0	0	0	
July	9	5	2	1	17	20	12	22	5	5.52	1.44	23, 24	4.1	5.2	2.6	4.0	61.6	61.4	62.0	61.7	83.2	52.6	76.3	70.7	14	18	4	11	0	0	8	
Aug	14	16	9	2	3	6	15	20	8	3.40	1.84	28	3.9	4.6	3.2	3.9	57.4	56.3	59.2	57.6	85.3	47.2	75.6	69.4	14	18	4	10	0	0	2	
Sept	10	8	5	5	6	9	4	11	32	2.47	0.78	28	5.6	6.2	4.8	5.5	50.9	51.2	51.7	51.3	81.5	52.1	73.5	69.0	8	12	10	12	0	0	1	First ice and first frost Sept. 10th.
Oct	9	24	10	4	10	9	8	14	5	2.43	0.87	28, 29	6.1	7.0	4.7	5.9	44.8	46.2	46.4	45.8	80.5	59.0	77.3	72.3	6	18	12	10	0	0	0	
Nov	4	4	6	8	24	13	17	11	3	1.50	0.29	9, 26	6.0	6.6	4.4	5.7	34.7	38.1	36.4	36.4	75.6	61.2	71.1	69.3	7	18	10	9	1	9	0	First snow Nov. 1st; first killing frost, 15th.
Dec	8	11	5	4	18	12	20	14	1	3.40	1.47	23, 24	7.7	7.6	5.8	7.0	29.4	32.8	30.7	31.0	85.6	74.0	82.4	80.7	8	10	18	19	7	20	0	
Sums ..	100	135	69	48	161	144	155	188	95	43.17	....	.....	72.0	75.5	53.6	67.0	491.6	508.5	507.9	502.7	960.4	700.4	898.4	853.2	97	147	120	167	22	105	11	
	Percentages.																								Percentages.							
Means .	9.1	12.3	6.3	4.4	14.7	13.2	14.2	17.2	8.7	.....	...	......	6.0	6.3	4.5	5.6	41.0	42.4	42.3	41.9	80.0	58.4	74.9	71.1	26.6	40.4	33.0	45.8	6.0	28.8	3.0	

[1] One 11 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.48 a. m., 2.48 p. m., and 10.48 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.48 a. m., January 1, to 6.48 a. m., December 26, inclusive, +.009 inch; from 10.48 a. m., December 26, to 10.48 p. m., December 31, inclusive, +.006 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.850; February, 0.860; March, 0.850; April, 0.860; May, 0.800; June, 0.790; July, 0.790; August, 0.790; September, 0.790; October, 0.820; November, 0.850; December, 0.860.

J. N. RYKER,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

POPLAR RIVER, MONT.

[Latitude, 48° 8′ N.; longitude 105° 10′ W. Magnetic variation, —° W. Elevation of barometer above sea-level, 2,030 (B) feet. Elevation of exposed thermometer above ground, 4 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan.[1]	27.862	27.900	27.937	27.900	28.427	18	27.165	29	1.262	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Feb.[2]	27.966	28.000	27.993	27.986	28.463	2	27.451	10	1.012	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Mar	27.955	27.922	27.923	27.933	28.468	2	27.302	17	1.166	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Apr	27.797	27.754	27.766	27.772	28.387	24	27.288	20	1.099	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
May	27.854	27.802	27.835	27.830	28.204	10	27.335	17	.869	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
June[3]	27.789	27.730	27.747	27.755	28.011	1	27.429	10	.582	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
July	27.868	27.825	27.827	27.840	28.138	28	27.458	13	.680	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Aug	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	79.4	51.2	......	......	......	......	......	......	......
Sept.[4]	......	......	......	......	......	......	......	......	......	47.4	69.6	54.5	57.2	90	5	28	22	62	73.0	42.4	......	......	......	......	......	......	......
Oct.[5]	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
Nov	......	......	......	......	......	......	......	......	......	12.6	28.8	20.3	20.6	60	1, 12	−26	26	86	34.7	0.5	......	......	......	......	......	......	......
Dec.[6]	......	......	......	......	......	......	......	......	......	−4.4	5.2	−3.4	−0.9	41	27	−39	31	80	9.4	−12.9	......	......	......	......	......	......	......
Sums	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......
																					Averages.						
Means	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan.[1]	0	15	0	1	0	1	2	71	0	.46	.20	29	2.4	3.0	2.3	2.6	......	......	......	......	......	......	......	......	15	12	1	5	..	..	..	
Feb.[2]	2	9	0	1	1	19	4	46	0	.43	.15	15	2.4	3.1	2.3	2.6	......	......	......	......	......	......	......	......	17	7	2	5	..	..	..	
Mar	1	28	1	7	0	11	6	39	0	.74	.16	29, 30	5.0	5.2	3.5	4.6	......	......	......	......	......	......	......	......	11	11	9	14	..	..	..	
Apr	0	13	0	18	2	35	12	10	0	.62	.32	22	2.3	2.7	1.9	2.3	......	......	......	......	......	......	......	......	19	7	4	5	..	..	..	
May	3	9	0	40	0	28	3	10	0	.68	.21	13	1.3	3.6	1.5	2.1	......	......	......	......	......	......	......	......	23	6	2	5	..	..	..	
June[3]	2	14	0	8	4	28	3	14	0	.43	.21	10	1.0	2.0	1.9	1.6	......	......	......	......	......	......	......	......	18	4	2	4	..	..	..	
July	20	2	0	7	0	25	10	29	0	.16	.15	31	2.0	3.3	2.4	2.6	......	......	......	......	......	......	......	......	20	9	2	2	..	..	..	
Aug	5	13	11	23	4	4	18	18	2	1.44	1.29	10	3.2	4.1	1.9	3.1	......	......	......	......	......	......	......	......	16	13	2	5	..	..	..	
Sept.[4]	2	14	3	4	4	12	16	14	0	1.01	.78	12, 13	2.1	2.5	0.6	1.9	35.5	42.9	38.3	38.9	64.5	42.3	57.3	54.7	18	5	0	2	0	3	0	
Oct.[5]	....	....	....	....	....	....	....	....	....	......	......	......	....	....	....	....	......	......	......	......	......	......	......	......	....	....	....	....	..	..	..	
Nov.[6]	2	25	1	5	3	12	30	12	0	.09	.05	26, 27	4.9	5.0	3.7	4.5	1.6	10.6	7.0	6.4	63.9	52.0	64.2	60.0	10	15	5	3	11	30	0	
Dec	6	8	6	2	3	5	21	5	4	.18	.10	21, 22	5.4	6.0	4.3	5.2	−6.6	0.1	−6.7	−4.4	91.6	80.4	87.4	86.5	6	8	6	3	16	20	0	
Sums	....	....	....	....	....	....	....	....	....	......	......	......	....	....	....	....	......	......	......	......	......	......	......	......	....	....	....	....	..	..	..	
	Percentages.																								Percentages.							
Means	....	....	....	....	....	....	....	....	....	......	......	......	....	....	....	....	......	......	......	......	......	......	......	......	....	....	....	....	..	..	..	

[1] Three 7 a. m. observations missed.
[2] One 7 a. m., and one 3 p. m. observation missed.
[3] Five 7 a. m., six 3 p. m., and six 11 p. m. observations missed.
[4] Seven 7 a. m., 3 p. m., and 11 p. m. observations missed.
[5] Data incomplete.
[6] Eleven 7 a. m., 3 p. m., and 11 p. m. observations missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.11 a. m., 1.11 p. m., and 9.11 p. m., local time.

Correction for instrumental error of barometer used: From 5.11 a. m., January 1, to 1.11 p. m., August 12, inclusive, −.003 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.350; February, 2.350; March, 2.300; April, 2.200; May, 2.120; June, 2.100; July, 2.060; August, 2.080.

GEO. A. CARDEN,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PORT HURON, MICH.

[Latitude, 43° N. longitude, 82° 26′ W. Magnetic variation, 1° W. Elevation of barometer above sea-level, 633 feet. Elevation of exposed thermometer above ground, 80 feet. Elevation of rain-gauge above ground, 63 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.419	29.378	29.407	29.401	29.839	4	28.728	20	1.111	13.6	21.1	16.0	16.9	42.4	30	—14.7	22	57.1	24.2	9.3	2,507	2,411	2,523	7,441	34	SW.	18
Feb	29.507	29.479	29.489	29.492	29.928	2	28.985	24	0.943	16.6	24.1	19.9	20.2	50.8	16	— 6.6	10	57.4	28.1	11.4	1,802	2,256	2,071	[1]6,129	30	W.	26
Mar	29.303	29.266	29.288	29.286	29.791	5	28.628	10	1.163	19.9	27.3	23.5	23.6	54.8	14	— 6.0	8	60.8	32.2	14.1	1,810	2,657	2,427	[2]6,894	38	N.	18
Apr	29.279	29.262	29.285	29.275	29.536	2	28.773	11	0.763	37.8	43.5	38.8	40.0	81.4	14	14.6	2	66.8	48.6	32.4	1,972	2,933	2,555	7,460	36	SW.	11
May	29.255	29.232	29.249	29.245	29.566	6	28.925	27	0.641	46.1	52.7	46.7	48.5	78.0	19	32.4	21	45.6	58.3	40.9	2,570	3,347	2,926	8,843	49	N.	21
June	29.210	29.186	29.191	29.196	29.648	1	28.771	10	0.877	60.1	68.8	60.4	63.1	85.0	17	41.0	1	44.0	72.8	54.6	1,638	2,524	2,122	6,284	36	W.	19
July ...	29.273	29.251	29.251	29.258	29.581	18	28.933	12	0.648	63.2	70.5	64.1	65.9	87.0	4	48.9	9	38.1	76.2	58.2	1,719	2,648	2,067	6,434	28	W., SW.	22, 27
Aug.....	29.360	29.324	29.335	29.340	29.591	14	29.053	2	0.538	59.9	71.4	63.1	64.8	89.5	22	48.0	4	41.5	74.7	55.9	1,465	2,270	1,946	5,681	30	S.	28
Sept.....	29.389	29.337	29.352	29.359	29.765	10	28.758	24	1.007	52.0	62.6	54.9	56.5	83.0	15	35.5	26	47.5	65.7	49.2	1,541	2,019	1,977	5,537	32	N.	17
Oct.......	29.412	29.383	29.400	29.398	29.953	16	28.534	29	1.419	43.5	51.8	46.1	47.0	79.0	9	30.0	21	49.0	54.7	40.6	1,875	2,623	2,116	6,614	39	W.	30
Nov	29.336	29.312	29.331	29.326	29.842	16	28.718	9	1.124	35.8	42.7	37.9	38.8	64.5	5	8.5	16	56.0	46.9	31.9	2,954	3,447	2,925	9,326	48	W.	11
Dec	29.309	29.297	29.334	29.313	29.782	22	28.855	27	0.927	24.3	30.4	26.6	27.1	55.5	7	1.3	28	54.2	34.5	19.6	2,096	2,661	2,449	7,206	31	W.	21
Sums..	352.052	351.707	351.914	351.889	......	....	......	....	.....	472.8	566.4	498.0	512.4	....	....	......	....	....	616.9	418.1	23,949	31,796	28,104	83,849	..	....	.....
																					Averages.						
Means.	29.338	29.309	29.326	29.324	29.953	*16	28.534	*29	......	39.4	47.1	41.3	42.7	89.5	†22	—14.7	‡22	....	51.4	34.8	1,995.8	2,649.7	2,342.0	......	..	....	.....

[1] For 24½ days.

[2] For 27 days.

* October.

† August.

‡ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from— North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. Total amount.	Any 3 consecutive 8 hourly measurements. Largest amount.	Date.	Washington time. Cloudiness (in tenths). 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	Remarks.
1883.										*In.*	*In.*						°	°	°	°												
Jan	2	8	8	8	13	29	13	10	2	1.65	.37	17	8.4	7.0	5.7	7.0	10.4	15.4	12.8	12.9	86.8	78.8	86.5	84.0	4	11	16	15	26	31	0	
Feb	2	8	4	4	17	17	19	11	2	4.00	1.09	16	5.9	6.4	5.5	5.9	13.4	19.8	17.0	16.7	86.7	83.7	88.0	86.1	7	10	11	15	20	27	0	
Mar	20	9	0	6	12	17	15	9	5	2.86	.79	18, 19	5.5	7.4	4.8	5.9	16.3	19.3	19.0	18.2	85.9	73.1	82.9	80.6	6	16	9	10	18	31	0	
Apr	19	27	1	4	17	11	5	4	2	1.26	.38	5	6.0	7.0	3.8	5.6	31.6	32.3	32.6	32.2	78.6	67.0	79.1	74.9	9	11	10	9	3	14	0	
May	23	16	3	7	19	15	7	2	1	5.69	.98	19	6.5	6.7	6.3	6.5	40.4	39.8	40.2	40.1	81.4	64.7	79.9	75.3	6	11	14	19	0	0	0	
June	10	16	2	9	28	11	12	2	0	5.71	1.40	27, 28	4.3	5.7	4.6	4.9	54.9	56.3	54.8	55.3	83.3	67.3	82.9	77.8	7	16	7	16	0	0	0	
July	12	19	2	4	24	18	10	4	0	5.63	1.04	3	4.4	5.4	3.9	4.5	58.5	59.2	59.7	59.1	85.3	69.4	86.2	80.3	10	15	6	20	0	0	0	
Aug	16	25	4	1	18	12	10	6	1	0.59	.40	12, 13	2.3	3.5	2.9	2.9	54.9	55.8	56.0	55.6	83.6	58.6	78.5	73.6	17	11	3	4	0	0	0	
Sept	12	17	15	9	17	7	4	8	1	2.24	.76	24, 25	6.0	5.4	4.7	5.3	48.2	49.3	48.2	48.6	87.1	63.6	79.2	76.6	10	9	11	14	0	0	0	First frost on Sept. 3d.
Oct	13	21	14	6	14	6	8	5	6	3.47	.92	29, 30	6.6	7.0	6.5	6.7	39.0	39.3	40.0	39.4	84.4	65.8	79.9	76.7	4	10	17	17	0	1	0	
Nov	1	4	3	4	31	17	13	17	0	2.58	1.21	21	5.6	5.9	5.1	5.5	32.0	33.9	33.1	33.0	86.1	71.9	82.8	80.8	7	13	10	9	3	18	0	
Dec	2	5	3	4	23	15	14	23	4	1.30	.29	7	6.8	7.0	6.2	6.7	19.5	22.9	22.0	21.5	82.0	74.0	82.6	79.5	8	15	13	14	12	24	0	
Sums ..	132	175	59	66	233	173	130	101	24	36.98	....	.....	68.3	74.4	60.0	67.4	419.1	443.3	435.4	432.6	1,011.2	837.9	988.5	945.7	90	148	127	162	82	141	0	
	Percentages.																								Percentages.							
Means .	12.1	16.0	5.4	6.0	21.3	16.0	11.9	9.2	2.2	....	....	......	5.7	6.2	5.0	5.6	34.9	36.9	36.3	36.0	84.3	69.8	82.3	78.8	24.7	40.5	34.8	44.4	22.5	38.6	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.38 a. m., 2.38 p. m., and 10.38 p. m., local time.

Correction for instrumental error of barometer used: From 6.38 a. m., January 1, to 10.38 p. m., December 31, inclusive, —.001 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.730; February, 0.730; March, 0.720; April, 0.700; May, 0.680; June, 0.670; July, 0.660; August, 0.660; September, 0.670; October, 0.690; November, 0.720; December, 0.730.

M. H. PERRY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

PORTLAND, ME.

[Latitude, 43° 39′ N.; longitude, 70° 15′ W. Magnetic variation, 13° 15′ W. Elevation of barometer above sea-level, 45 feet. Elevation of exposed thermometer above ground, 28 feet. Elevation of rain-gauge above ground, 77 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.119	30.069	30.087	30.092	30.496	19	29.407	21	1.089	17.6	26.1	20.6	21.4	44.0	14	1.0	5	43.0	28.6	12.7	2,095	2,813	2,380	6,788	46	SE.	31
Feb	30.136	30.068	30.129	30.111	30.722	24	29.398	7	1.324	21.3	30.9	24.9	25.7	54.0	17	7.0	10	47.0	34.4	16.8	1,846	2,281	2,005	6,132	24	W., NW.	1, 26
Mar	29.844	29.771	29.810	29.808	30.469	6	28.907	10	1.562	24.8	34.6	27.4	28.9	52.0	2, 15	—0.5	9	52.5	37.4	18.5	1,930	2,839	2,810	7,579	32	NE.	10
Apr	29.939	29.892	29.924	29.918	30.445	14	29.514	6	.931	40.5	50.8	42.7	44.7	66.0	10 18	22.0	1	44.0	53.3	36.0	1,663	2,403	1,754	5,820	25	S.	27
May	29.929	29.870	29.895	29.898	30.396	2	29.517	29	.879	51.7	60.5	52.4	54.9	73.0	8, 18	37.0	1	36.0	63.2	46.9	1,554	2,407	2,045	6,006	26	S.	26
June	29.928	29.888	29.889	29.902	30.470	2	29.350	11	1.120	63.6	71.9	63.8	66.4	86.0	24	51.0	3	35.0	75.0	58.7	1,341	2,163	1,599	5,103	24	N., W.	13 14
July	29.881	29.828	29.841	29.850	30.132	21	29.552	7	.580	66.2	76.4	66.9	69.8	89.0	7	53.0	1	36.0	79.0	61.7	1,466	2,064	1,780	5,310	24	SW.	2
Aug	29.952	29.908	29.932	29.931	30.262	15	29.590	3	.672	64.2	74.5	64.9	67.9	87.0	21	48.5	29	38.5	76.5	60.0	1,019	1,714	1,513	4,246	16	NW.	26
Sept	30.015	29.981	29.979	29.992	30.373	11	29.185	25	1.188	55.3	65.5	56.8	59.2	78.5	20	43.0	30	35.5	67.2	51.1	1,160	1,625	1,457	4,242	28	W.	25
Oct	30.125	30.071	30.095	30.097	30.606	17	29.054	30	1.552	44.6	53.6	46.5	48.2	78.0	14	29.0	23	49.0	55.8	40.4	1,398	1,809	1,609	4,816	31	NW.	30
Nov	30.020	29.980	29.994	29.998	30.529	25	29.267	12	1.262	38.6	46.4	40.9	42.0	62.0	22	17.0	29	45.0	48.9	34.4	1,897	2,322	1,931	6,150	37	N.	7
Dec	29.994	29.965	29.975	29.978	30.606	23	28.962	28	1.644	24.6	30.9	27.5	27.7	52.0	9	—8.1	23	60.1	34.6	19.2	1,943	2,378	1,989	6,310	32	W.	28
Sums..	359.882	359.291	359.550	359.575	......	.....	......	..	......	513.0	622.1	535.3	556.8	....	.....	.....	.....	....	653.9	456.4	19,312	26,318	22,872	68,502	....	....	....
																						Averages.					
Means	29.990	29.941	29.962	29.965	30.722	*24	28.907	†10	......	42.8	51.8	44.6	46.4	89.0	‡7	—8.1	§23	....	54.5	38.0	1,609.0	2,193.0	1,906.0	......	....	....	....

* February. † March. ‡ July. § December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	29	11	2	1	1	8	21	20	0	2.53	1.31	20, 21	4.9	6.5	4.5	5.3	8.8	14.3	11.7	11.6	67.6	61.9	68.5	66.0	8	14	9	13	18	31	0	
Feb	18	4	3	0	7	11	23	18	0	2.81	0.74	3, 4	4.7	5.0	4.5	4.7	12.3	16.8	15.5	14.9	68.1	56.1	67.0	63.7	8	14	6	14	9	27	0	
Mar	17	11	3	3	9	13	17	20	0	1.58	0.53	6, 7	5.1	5.2	3.5	4.6	14.1	16.1	15.7	15.3	63.9	47.9	61.4	57.7	12	11	8	6	10	28	0	
Apr	9	12	2	8	15	8	14	22	0	1.33	0.45	20	4.9	4.8	4.2	4.6	28.1	30.6	30.4	29.7	62.1	48.9	62.4	57.8	10	13	7	10	0	5	0	Last frost Apr. 30.
May	9	12	16	7	24	10	8	5	2	2.91	0.91	22, 23	5.8	6.0	4.9	5.6	42.2	42.3	42.6	42.4	71.8	55.2	70.5	65.8	7	14	10	15	0	0	0	
June	9	4	8	11	23	17	14	3	1	2.94	0.91	19	4.4	5.7	4.1	4.7	54.7	56.0	56.5	55.7	74.0	59.7	78.0	70.6	11	15	4	15	0	0	0	
July	5	4	8	9	17	21	18	10	1	5.05	1.12	4	3.6	5.2	3.9	4.2	57.5	60.6	59.4	59.2	75.1	59.9	77.4	70.8	10	17	4	13	0	0	0	
Aug	13	5	2	6	13	19	21	13	1	0.36	0.21	2	2.5	4.8	2.3	3.2	55.0	56.3	55.2	55.5	73.0	55.1	71.8	66.6	18	10	3	3	0	0	0	
Sept	8	6	5	9	18	11	15	13	5	2.68	1.29	24, 25	3.9	4.8	4.0	4.2	47.4	49.9	48.1	48.5	75.6	60.5	73.6	69.9	12	11	7	12	0	0	0	First frost Sept. 27.
Oct	32	5	7	4	11	9	18	6	1	3.51	1.25	29	4.9	5.8	4.2	5.0	37.3	38.7	37.4	37.8	76.2	61.3	71.9	69.8	12	8	11	10	0	2	0	
Nov	16	5	3	4	12	19	18	12	1	3.66	2.65	26, 27	5.5	6.3	3.9	5.2	30.2	34.3	32.4	32.3	72.5	64.1	71.7	69.4	6	19	5	11	1	9	0	
Dec	26	10	2	3	5	16	14	16	1	2.63	0.49	24	6.3	6.2	4.2	5.6	17.8	22.4	20.2	20.1	75.0	71.1	73.7	73.3	8	13	10	16	11	27	0	
Sums ..	191	89	61	65	155	162	201	158	13	31.99	....	......	56.5	66.3	48.2	56.9	405.4	438.3	425.1	423.0	854.9	701.7	847.9	801.4	122	159	84	138	49	129	0	
	Percentages.																								Percentages.							
Means .	17.4	8.1	5.6	5.9	14.2	14.8	18.4	14.4	1.2	....	....	......	4.7	5.5	4.0	4.7	33.8	36.5	35.4	35.2	71.2	58.5	70.7	66.8	33.4	43.6	23.0	37.8	13.4	35.3	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.27 a. m., 3.27 p. m., and 11.27 p. m., local time.

Correction for instrumental error of barometer used: From 7.27 a. m., January 1, to 11.27 p. m., December 31, inclusive, +.001 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.050; February, 0.050; March, 0.050; April, 0.050; May, 0.050; June, 0.050; July, 0.050; August, 0.050; September, 0.050; October, 0.050; November, 0.050; December, 0.050.

W. W. EICHELBERGER,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

PORTLAND, ME.

[Latitude, 43° 39′ N.; longitude, 70° 15′ W. Magnetic variation, 13° 15′ W. Elevation of barometer above sea-level, 45 feet. Elevation of exposed thermometer above ground, 28 feet. Elevation of rain-gauge above ground, 77 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.119	30.069	30.087	30.092	30.496	19	29.407	21	1.089	17.6	26.1	20.6	21.4	44.0	14	1.0	5	43.0	28.6	12.7	2,095	2,313	2,380	6,788	46	SE.	31
Feb	30.136	30.068	30.129	30.111	30.722	24	29.398	7	1.324	21.3	30.9	24.9	25.7	54.0	17	7.0	10	47.0	34.4	16.8	1,846	2,281	2,005	6,132	24	W., NW.	1, 26
Mar	29.844	29.771	29.810	29.808	30.469	6	28.907	10	1.562	24.8	34.6	27.4	28.9	52.0	2, 15	—0.5	9	52.5	37.4	18.5	1,930	2,839	2,810	7,579	32	NE.	10
Apr	29.939	29.892	29.924	29.918	30.445	14	29.514	6	.931	40.5	50.8	42.7	44.7	66.0	{10, 18}	22.0	1	44.0	53.3	36.0	1,663	2,403	1,754	5,820	25	S.	27
May	29.929	29.870	29.895	29.898	30.396	2	29.517	29	.879	51.7	60.5	52.4	54.9	73.0	8, 18	37.0	1	36.0	63.2	46.9	1,554	2,407	2,045	6,006	26	S.	26
June	29.928	29.888	29.889	29.902	30.470	2	29.350	11	1.120	63.6	71.9	63.8	66.4	86.0	24	51.0	3	35.0	75.0	58.7	1,341	2,163	1,599	5,103	24	N., W.	{13, 14}
July	29.881	29.828	29.841	29.850	30.132	21	29.552	7	.580	66.2	76.4	66.9	69.8	89.0	7	53.0	1	36.0	79.0	61.7	1,466	2,064	1,780	5,310	24	SW.	2
Aug	29.952	29.908	29.932	29.931	30.262	15	29.590	3	.672	64.2	74.5	64.9	67.9	87.0	21	48.5	29	38.5	76.5	60.0	1,019	1,714	1,513	4,246	16	NW.	26
Sept	30.015	29.981	29.979	29.092	30.373	11	29.185	25	1.188	55.3	65.5	56.8	59.2	78.5	20	43.0	30	35.5	67.2	51.1	1,160	1,625	1,457	4,242	28	W.	25
Oct	30.125	30.071	30.095	30.097	30.606	17	29.054	30	1.552	44.6	53.6	46.5	48.2	78.0	14	29.0	23	49.0	55.8	40.4	1,398	1,809	1,609	4,816	31	NW.	30
Nov	30.020	29.980	29.994	29.998	30.529	25	29.267	12	1.262	38.0	46.4	40.9	42.0	62.0	22	17.0	29	45.0	48.9	34.4	1,897	2,322	1,931	6,150	37	N.	7
Dec	29.994	29.965	29.975	29.978	30.606	23	28.962	28	1.644	24.6	30.9	27.5	27.7	52.0	9	—8.1	23	60.1	34.0	19.2	1,943	2,378	1,989	6,310	32	W.	28
Sums..	359.882	359.291	359.550	359.575	......	...	......	..	......	513.0	622.1	535.3	556.8	...	...	...	...	...	653.9	456.4	19,312	26,318	22,872	68,502	....	....	....
																					Averages.						
Means	29.990	29.941	29.962	29.965	30.722	*24	28.907	†10	......	42.8	51.8	44.6	46.4	89.0	‡7	—8.1	§23	....	54.5	38.0	1,609.0	2,193.0	1,906.0	......	....	....	....

* February. † March. ‡ July. § December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	29	11	2	1	1	8	21	20	0	2.53	1.31	20, 21	4.9	6.5	4.5	5.3	8.8	14.3	11.7	11.6	67.6	61.9	68.5	66.0	8	14	9	13	18	31	0	
Feb	18	4	3	0	7	11	23	18	0	2.81	0.74	3, 4	4.7	5.0	4.5	4.7	12.3	16.8	15.5	14.9	68.1	56.1	67.0	63.7	8	14	6	14	9	27	0	
Mar	17	11	3	3	9	13	17	20	0	1.58	0.53	6, 7	5.1	5.2	3.5	4.6	14.1	16.1	15.7	15.3	63.9	47.9	61.4	57.7	12	11	8	6	10	28	0	
Apr	9	12	2	8	15	8	14	22	0	1.33	0.45	20	4.9	4.8	4.2	4.6	28.1	30.6	30.4	29.7	62.1	48.9	62.4	57.8	10	13	7	10	0	5	0	Last frost Apr. 30.
May	9	12	16	7	24	10	8	5	2	2.91	0.91	22, 23	5.8	6.0	4.9	5.6	42.2	42.3	42.6	42.4	71.8	55.2	70.5	65.8	7	14	10	15	0	0	0	
June	9	4	8	11	23	17	14	3	1	2.94	0.91	19	4.4	5.7	4.1	4.7	54.7	56.0	56.5	55.7	74.0	59.7	78.0	70.6	11	15	4	15	0	0	0	
July	5	4	8	9	17	21	18	10	1	5.05	1.12	4	3.6	5.2	3.9	4.2	57.5	60.6	59.4	59.2	75.1	59.9	77.4	70.8	10	17	4	13	0	0	0	
Aug	13	5	2	6	13	19	21	13	1	0.36	0.21	2	2.5	4.8	2.3	3.2	55.0	56.3	55.2	55.5	73.0	55.1	71.8	66.6	18	10	3	3	0	0	0	
Sept	8	6	5	9	18	11	15	13	5	2.68	1.29	24, 25	3.9	4.8	4.0	4.2	47.4	49.9	48.1	48.5	75.6	60.5	73.6	69.9	12	11	7	12	0	0	0	First frost Sept. 27.
Oct	32	5	7	4	11	9	18	6	1	3.51	1.25	29	4.9	5.8	4.2	5.0	37.3	38.7	37.4	37.8	76.2	61.3	71.9	69.8	12	8	11	10	0	2	0	
Nov	16	5	8	4	12	19	18	12	1	3.66	2.65	26, 27	5.5	6.3	3.9	5.2	30.2	34.3	32.4	32.3	72.5	64.1	71.7	69.4	6	19	5	11	1	9	0	
Dec	26	10	2	3	5	16	14	16	1	2.63	0.49	24	6.3	6.2	4.2	5.6	17.8	22.4	20.2	20.1	75.0	71.1	73.7	73.3	8	13	10	16	11	27	0	
Sums ..	191	89	61	65	155	162	201	158	13	31.99	....	......	56.5	66.3	48.2	56.9	405.4	438.3	425.1	423.0	854.9	701.7	847.9	801.4	122	159	84	138	49	129	0	
	Percentages.																								Percentages.							
Means .	17.4	8.1	5.6	5.9	14.2	14.8	18.4	14.4	1.2	....	....	......	4.7	5.5	4.0	4.7	33.8	36 5	35.4	35.2	71.2	58.5	70.7	66.8	33.4	43.6	23.0	37.8	13.4	35.3	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.27 a. m., 3.27 p. m., and 11.27 p. m., local time.

Correction for instrumental error of barometer used: From 7.27 a. m., January 1, to 11.27 p. m., December 31, inclusive, +.001 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.050; February, 0.050; March, 0.050; April, 0.050; May, 0.050; June, 0.050; July, 0.050; August, 0.050; September, 0.050; October, 0.050; November, 0.050; December, 0.050.

W. W. EICHELBERGER,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PIOCHE, NEV.

[Latitude, 37° 56′ N.; longitude, 114° 26′ W. Magnetic variation, 16° E. Elevation of barometer above sea-level, 6,110 (B) feet. Elevation of exposed thermometer above round, 9 feet. Elevation of rain-gauge above ground, 23 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	24.057	24.051	24.049	24.052	24.458	8	23.618	17	.840	20.2	36.8	28.0	28.2	55.4	31	—16.5	20	71.9	39.4	16.5	1,287	1,385	1,956	4,628	32	N.	7
Feb	23.998	24.012	24.016	24.009	24.492	17	23.329	1	1.163	21.5	37.6	28.6	29.2	57.0	21, 22	— 1.0	5	58.0	40.2	18.2	1,409	1,609	1,819	4,835	31	SE.	14
Mar	24.015	24.015	24.005	24.012	24.310	2	23.664	29	.646	37.5	55.4	45.0	46.0	68.5	21	26.0	19	42.5	57.9	34.0	1,254	1,708	2,048	5,010	27	N.	18
Apr	23.890	23.907	23.900	23.899	24.374	15	23.436	20	.938	33.9	50.8	42.0	42.1	68.0	29	17.2	13	50.8	53.9	30.5	1,446	2,133	2,404	5,983	36	N.	21
May	23.986	23.987	23.969	23.981	24.325	20	23.736	1	.589	43.5	63.0	52.9	53.1	84.0	27	25.0	2	59.0	66.3	39.6	1,439	2,315	2,658	6,412	34	S.	5
June[1]	24.053	24.039	24.021	24.038	24.255	6	23.830	11	.425	54.8	73.1	64.1	64.0	86.0	10	37.0	15	49.0	77.0	50.8	838	1,114	1,264	3,216	23	S.	14
July	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...
Aug	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...
Sept	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...
Oct	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...
Nov	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...
Dec	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...
Sums	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...
																					Averages.						
Means	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...

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[1] Fifteen days; station closed June 15, 1883.

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	22	8	0	1	22	13	8	22	2	.20	.07	4	3.3	4.6	1.4	3.1	11.8	16.2	14.0	14.0	69.4	45.8	56.3	57.2	17	11	8	4	6	29	0	
Feb	15	1	0	4	24	4	2	29	5	.28	.09	13	1.8	3.3	2.6	2.6	13.1	15.5	16.6	15.1	70.2	44.2	61.9	58.8	17	8	8	6	7	27	0	
Mar	18	6	1	8	32	10	5	15	3	.59	.21	23, 24	3.8	5.6	3.5	4.3	25.1	22.8	25.1	24.3	61.7	31.1	47.8	46.9	13	8	10	7	0	8	0	
Apr	21	3	0	6	35	4	8	12	1	1.15	.40	12	3.7	5.7	2.9	4.1	22.7	21.6	22.5	22.3	65.6	37.6	48.8	50.7	9	17	4	6	0	19	0	
May	18	2	1	4	37	7	2	20	2	.33	.15	1	3.6	4.3	2.6	3.5	28.5	34.2	31.3	31.3	57.7	36.3	45.5	46.5	13	18	5	5	0	4	0	
June[1]	19	2	0	1	12	3	0	8	0	.48	.45	15	3.3	2.8	3.5	3.2	31.4	29.8	29.5	30.2	43.1	23.9	30.6	32.5	8	6	1	2	0	0	0	
July																																
Aug																																
Sept																																
Oct																																
Nov																																
Dec																																
Sums																																
	Percentages.																								Percentages.							
Means																																

[1] Station closed June 15, 1883.

NOTE.—7 a. m., 3 p. m., and 11 p m., Washington time, correspond with 4.30 a. m., 12.30 p. m., and 8.30 p. m., local time.

Correction for instrumental error of barometer used: From 4.30 a. m., January 1, to 3.30 p. m., June 15, inclusive, +.003 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 6.20; February, 6.16; March, 6.14; April, 5.99; May, 5.92; June, 5.80; July, 5.73; August, 5.70; September, 5.78; October, 5.92; November, 6.14; December, 6.17.

F. R. DAY,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PITTSBURG, PA.

[Latitude, 40° 32′ N.; longitude, 80° 2′ W. Magnetic variation, 1° 15′ W. Elevation of barometer above sea-level, 766 feet. Elevation of exposed thermometer above ground, 88 feet. Elevation of rain-gauge above ground, 86 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.324	29.293	29.296	29.304	29.740	23	28.752	10	.988	25.8	31.6	28.3	28.6	54.0	21, 30	1.0	23	53.0	35.9	20.8	1,267	1,630	1,373	4,270	25	W.	21
Feb	29.419	29.398	29.396	29.404	29.790	2	28.919	7	.871	31.9	38.3	35.2	35.1	70.5	16	13.0	2, 27	63.5	43.7	25.9	1,406	1,770	1,424	4,600	24	W.	25
Mar	29.188	29.139	29.195	29.174	29.677	7	28.576	10	1.101	30.8	40.0	32.7	34.5	69.0	18	11.0	5	58.0	43.4	24.7	1,496	2,151	1,787	5,434	25	W.	12
Apr	29.194	29.134	29.188	29.172	29.473	4	28.825	23	.648	44.4	57.6	48.9	50.3	86.0	14	26.5	1	59.5	60.8	40.8	828	1,618	1,267	3,713	24	W.	11
May	29.168	29.123	29.145	29.145	29.467	6	28.521	21	.946	54.7	69.0	58.4	60.7	90.0	4	39.0	17	51.0	72.5	50.3	876	1,755	1,337	3,968	26	SW.	10
June[1]	29.190	29.144	29.166	29.167	29.552	1	28.851	10	.701	64.9	78.8	67.9	70.5	90.0	5, 17	48.5	14	41.5	81.0	61.8	836	1,694	1,285	3,815	24	W.	11
July	29.247	29.200	29.226	29.224	29.424	21	28.914	12	.510	67.1	81.2	70.1	72.8	96.0	3, 5	53.5	1	42.5	84.4	63.6	801	1,654	1,338	2,793	20	SW.	23
Aug	29.289	29.242	29.266	29.266	29.470	7	28.968	2	.502	62.0	79.1	67.1	69.4	94.0	22	51.5	6	42.5	80.9	59.9	606	1,355	1,130	3,091	17	SW.	2
Sept	29.307	29.239	29.274	29.273	29.625	10	28.801	24	.824	56.7	70.9	60.7	62.8	93.0	16	39.4	9	53.6	74.0	53.5	462	1,179	924	2,565	27	SW.	24
Oct	29.328	29.288	29.317	29.311	29.785	16	28.607	2	1.178	50.8	61.5	53.6	55.3	85.5	10	33.5	16	52.0	63.7	47.5	823	1,472	1,181	3,476	28	SW.	29
Nov	29.347	29.293	29.329	29.323	29.783	16	28.870	9	.913	42.1	52.0	45.7	46.6	73.0	9	15.3	16	57.7	55.3	38.0	1,561	2,105	1,728	5,394	21	NW.	12
Dec	29.284	29.251	29.274	29.270	29.640	22	28.762	27	.878	33.3	41.2	35.6	36.7	64.0	7	15.0	16	49.0	44.6	28.1	1,481	1,816	1,730	5,030	22	W.	28
Sums	351.285	350.744	351.072	351.033	......	......	......	......	......	564.5	701.2	604.2	623.3	...	......	......	......	....	740.2	514.9	14,443	20,202	16,504	49,149	....	....	....
																					Averages.						
Means	29.274	29.229	29.256	29.253	29.790	*2	28.521	†21	......	47.0	58.4	50.4	51.9	96.0	‡3, 5	1.0	§23	....	61.7	42.9	1,036.9	1,683.5	1,375.8	......	....	....	....

[1] One 11 p. m. observation missed.

* February. † May. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	13	6	3	11	13	16	14	9	3.22	0.74	27, 28	8.7	7.5	6.4	7.5	21.5	24.2	23.1	22.9	83.6	74.5	81.2	79.8	3	10	18	18	8	26	0	
Feb	5	7	9	2	9	13	20	14	5	4.92	1.35	6, 7	6.9	6.9	5.7	6.5	26.3	26.8	28.0	27.0	79.8	63.6	74.7	72.7	4	14	10	17	2	22	0	
Mar	11	14	2	4	9	15	11	26	1	2.51	1.01	30	6.3	6.5	4.2	5.7	24.2	26.1	23.0	24.4	76.9	59.5	68.2	68.2	7	14	10	15	4	24	0	
Apr	10	18	7	3	12	6	6	20	8	3.69	1.04	23	5.5	6.7	4.6	5.6	36.8	38.6	39.4	38.3	75.3	53.5	71.3	66.7	10	10	10	14	0	4	0	
May	5	9	5	4	16	18	10	15	11	5.38	1.30	14, 15	6.1	5.9	3.6	5.2	45.0	47.4	48.2	46.9	71.6	50.2	70.7	64.2	10	12	9	14	0	0	0	
June[1]	7	6	3	8	26	10	16	7	7	4.73	1.23	18, 19	5.1	4.8	3.6	4.5	59.0	59.4	59.8	59.4	81.5	53.0	76.1	70.2	11	13	5	18	0	0	0	
July	9	5	2	1	17	20	12	22	5	5.52	1.44	23, 24	4.1	5.2	2.6	4.0	61.6	61.4	62.0	61.7	83.2	52.6	76.3	70.7	14	13	4	11	0	0	8	
Aug	14	16	9	2	3	6	15	20	8	3.40	1.84	28	3.9	4.6	3.2	3.9	57.4	56.3	59.2	57.6	85.3	47.2	75.6	69.4	14	13	4	10	0	0	2	
Sept	10	8	5	5	6	9	4	11	32	2.47	0.78	28	5.6	6.2	4.8	5.5	50.9	51.2	51.7	51.3	81.5	52.1	73.5	69.0	8	12	10	12	0	0	1	First ice and first frost Sept. 10th. First snow Nov. 1st; first killing frost, 15th.
Oct	9	24	10	4	10	9	8	14	5	2.43	0.87	28, 29	6.1	7.0	4.7	5.9	44.8	46.2	46.4	45.8	80.5	59.0	77.3	72.3	6	13	12	10	0	0	0	
Nov	4	4	6	8	24	13	17	11	3	1.50	0.29	9, 26	6.0	6.6	4.4	5.7	34.7	38.1	36.4	36.4	75.6	61.2	71.1	69.3	7	13	10	9	1	9	0	
Dec	8	11	5	4	18	12	20	14	1	3.40	1.47	23, 24	7.7	7.6	5.8	7.0	29.4	32.8	30.7	31.0	85.6	74.0	82.4	80.7	3	10	18	19	7	20	0	
Sums	100	135	69	48	161	144	155	188	95	43.17	....	.....	72.0	75.5	53.6	67.0	491.6	508.5	507.9	502.7	960.4	700.4	898.4	853.2	97	147	120	167	22	105	11	
	Percentages.																								Percentages.							
Means	9.1	12.3	6.3	4.4	14.7	13.3	14.2	17.2	8.7	.....	..	......	6.0	6.3	4.5	5.6	41.0	42.4	42.3	41.9	80.0	58.4	74.9	71.1	26.6	40.4	33.0	45.8	6.0	28.8	3.0	

[1] One 11 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.48 a. m., 2.48 p. m., and 10.48 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.48 a. m., January 1, to 6.48a. m., December 26, inclusive, +.009 inch; from 10.48 a. m., December 26, to 10.48 p. m., December 31, inclusive, +.006 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.850; February, 0.860; March, 0.850; April, 0.880; May, 0.800; June, 0.790; July, 0.790; August, 0.790; September, 0.790; October, 0.820; November, 0.850; December, 0.860.

J. N. RYKER,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

POPLAR RIVER, MONT.

[Latitude, 48° 8′ N.; longitude 105° 10′ W. Magnetic variation, —° W. Elevation of barometer above sea-level, 2,030 (B) feet. Elevation of exposed thermometer above ground, 4 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan.[1]	27.862	27.900	27.937	27.900	28.427	18	27.165	29	1.262																		
Feb.[2]	27.966	28.000	27.992	27.986	28.463	2	27.451	10	1.012																		
Mar	27.955	27.922	27.923	27.933	28.468	2	27.302	17	1.166																		
Apr	27.797	27.754	27.766	27.772	28.387	24	27.288	20	1.099																		
May	27.854	27.802	27.835	27.830	28.204	10	27.335	17	.869																		
June[3]	27.789	27.730	27.747	27.755	28.011	1	27.429	10	.582																		
July	27.868	27.825	27.827	27.840	28.138	28	27.458	13	.680																		
Aug																			79.4	51.2							
Sept.[4]										47.4	69.6	54.5	57.2	90	5	28	22	62	73.0	42.4							
Oct.[5]																											
Nov										12.6	28.8	20.3	20.6	60	1, 12	−26	26	86	34.7	0.5							
Dec.[6]										−4.4	5.2	−3.4	−0.9	41	27	−39	31	80	9.4	−12.9							
Sums																											
																					Averages.						
Means																											

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number f days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan.[1]	0	15	0	1	0	1	2	71	0	.46	.20	29	2.4	3.0	2.3	2.6	....	....	....	....	....	....	....	....	15	12	1	5	..	..	..	
Feb.[2]	2	9	0	1	1	19	4	46	0	.43	.15	15	2.4	3.1	2.3	2.6	....	....	....	....	....	....	....	....	17	7	2	5	..	..	..	
Mar	1	28	1	7	0	11	6	39	0	.74	.16	29, 30	5.0	5.2	3.5	4.6	....	....	....	....	....	....	....	....	11	11	9	14	..	..	..	
Apr	0	13	0	18	2	35	12	10	0	.62	.32	22	2.3	2.7	1.9	2.3	....	....	....	....	....	....	....	....	19	7	4	5	..	..	..	
May	3	9	0	40	0	23	8	10	0	.68	.21	13	1.3	3.6	1.5	2.1	....	....	....	....	....	....	....	....	23	6	2	5	..	..	..	
June[3]	2	14	0	8	4	23	8	14	0	.43	.21	10	1.0	2.0	1.9	1.6	....	....	....	....	....	....	....	....	18	4	2	4	..	..	..	
July	20	2	0	7	0	25	10	29	0	.16	.15	31	2.0	3.3	2.4	2.6	....	....	....	....	....	....	....	....	20	9	2	2	..	..	..	
Aug	5	13	11	23	4	4	18	18	2	1.44	1.29	10	3.2	4.1	1.9	3.1	....	....	....	....	....	....	....	....	16	13	2	5	..	..	..	
Sept.[4]	2	14	3	4	4	12	16	14	0	1.01	.78	12, 13	2.1	2.5	0.6	1.9	35.5	42.9	38.3	38.9	64.5	42.3	57.3	54.7	18	5	0	2	0	3	0	
Oct.[5]	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
Nov.[6]	3	25	1	5	3	12	30	12	0	.09	.05	26, 27	4.9	5.0	3.7	4.5	1.6	10.6	7.0	6.4	63.9	52.0	64.2	60.0	10	15	5	3	11	30	0	
Dec	6	8	6	2	3	5	31	5	4	.18	.10	21, 22	5.4	6.0	4.3	5.2	−6.6	0.1	−6.7	−4.4	91.6	80.4	87.4	86.5	6	8	6	3	16	20	0	
Sums	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
	Percentages.																								Percentages.							
Means	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	

[1] Three 7 a. m. observations missed.

[2] One 7 a. m., and one 3 p. m. observation missed.

[3] Five 7 a. m., six 3 p. m., and six 11 p. m. observations missed.

[4] Seven 7 a. m., 3 p. m., and 11 p. m. observations missed.

[5] Data incomplete.

[6] Eleven 7 a. m., 3 p. m., and 11 p. m. observations missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.11 a. m., 1.11 p. m., and 9.11 p. m., local time.

Correction for instrumental error of barometer used: From 5.11 a. m., January 1, to 1.11 p. m., August 12, inclusive, —.003 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.350; February, 2.350; March, 2.300; April, 2.200; May, 2.120; June, 2.100; July, 2.060; August, 2.080.

GEO. A. CARDEN,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PORT HURON, MICH.

[Latitude, 43° N. longitude, 82° 26′ W. Magnetic variation, 1° W. Elevation of barometer above sea-level, 633 feet. Elevation of exposed thermometer above ground, 80 feet. Elevation of rain-gauge above ground, 68 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.419	29.378	29.407	29.401	29.839	4	28.728	20	1.111	13.6	21.1	16.0	16.9	42.4	30	—14.7	22	57.1	24.2	9.3	2,507	2,411	2,523	7,441	34	SW.	18
Feb	29.507	29.479	29.489	29.492	29.928	2	28.985	24	0.943	16.6	24.1	19.9	20.2	50.8	16	— 6.6	10	57.4	28.1	11.4	1,802	2,256	2,071	¹6,129	30	W.	26
Mar	29.303	29.266	29.288	29.286	29.791	5	28.628	10	1.163	19.9	27.3	23.5	23.6	54.8	14	— 6.0	8	60.8	32.2	14.1	1,810	2,657	2,427	²6,894	38	N.	18
Apr	29.279	29.262	29.285	29.275	29.536	2	28.773	11	0.763	37.8	43.5	38.8	40.0	81.4	14	14.6	2	66.8	48.6	32.4	1,972	2,933	2,555	7,460	36	SW.	11
May	29.255	29.232	29.249	29.245	29.566	6	28.925	27	0.641	46.1	52.7	46.7	48.5	78.0	19	32.4	21	45.6	58.8	40.9	2,570	3,347	2,926	8,843	49	N.	21
June	29.210	29.186	29.191	29.196	29.648	1	28.771	10	0.877	60.1	68.8	60.4	63.1	85.0	17	41.0	1	44.0	72.8	54.6	1,638	2,524	2,122	6,284	36	W.	19
July ...	29.273	29.251	29.251	29.258	29.581	18	28.933	12	0.648	63.2	70.5	64.1	65.9	87.0	4	48.9	9	38.1	76.2	58.2	1,719	2,648	2,067	6,434	28	W., SW.	22, 27
Aug.....	29.360	29.324	29.335	29.340	29.591	14	29.058	2	0.538	59.9	71.4	63.1	64.8	89.5	22	48.0	4	41.5	74.7	55.9	1,465	2,270	1,946	5,681	30	S.	28
Sept.....	29.389	29.337	29.352	29.359	29.765	10	28.758	24	1.007	52.0	62.6	54.9	56.5	83.0	15	35.5	26	47.5	65.7	49.2	1,541	2,019	1,977	5,537	32	N.	17
Oct......	29.412	29.383	29.400	29.398	29.953	16	28.534	29	1.419	43.5	51.3	46.1	47.0	79.0	9	30.0	21	49.0	54.7	40.6	1,875	2,623	2,116	6,614	39	W.	30
Nov	29.336	29.312	29.331	29.326	29.842	16	28.718	9	1.124	35.8	42.7	37.9	38.8	64.5	5	8.5	16	56.0	46.9	31.9	2,954	3,447	2,925	9,326	48	W.	11
Dec	29.309	29.297	29.334	29.313	29.782	22	28.855	27	0.927	24.3	30.4	26.6	27.1	55.5	7	1.3	28	54.2	34.5	19.6	2,096	2,661	2,449	7,206	31	W.	21
Sums..	352.052	351.707	351.914	351.889	......	....	......	....	.....	472.8	566.4	498.0	512.4	....	....	......	....	....	616.9	418.1	23,949	31,796	28,104	83,849	..	....	.....
																					Averages.						
Means.	29.338	29.309	29.326	29.324	29.953	*16	28.534	*29	......	39.4	47.1	41.5	42.7	89.5	†22	—14.7	‡22	....	51.4	34.8	1,995.8	2,649.7	2,342.0	......	..	....	.....

¹ For 24½ days. ² For 27 days. * October. † August. ‡ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from— North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. Total amount.	Any 3 consecutive 8 hourly measurements. Largest amount.	Date.	Washington time. Cloudiness (in tenths). 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	Remarks.
1883.										*In.*	*In.*						°	°	°	°												
Jan	2	8	8	8	13	29	13	10	2	1.65	.37	17	8.4	7.0	5.7	7.0	10.4	15.4	12.8	12.9	86.8	78.8	86.5	84.0	4	11	16	15	26	31	0	
Feb	2	8	4	4	17	17	19	11	2	4.00	1.09	16	5.9	6.4	5.5	5.9	13.4	19.8	17.0	16.7	86.7	83.7	88.0	86.1	7	10	11	15	20	27	0	
Mar	20	9	0	6	12	17	15	9	5	2.86	.79	18, 19	5.5	7.4	4.8	5.9	16.3	19.3	19.0	18.2	85.9	73.1	82.9	80.6	6	16	9	10	18	31	0	
Apr	19	27	1	4	17	11	5	4	2	1.26	.38	5	6.0	7.0	3.8	5.6	31.6	32.3	82.6	32.2	78.6	67.0	79.1	74.9	9	11	10	9	8	14	0	
May	23	16	8	7	19	15	7	2	1	5.69	.98	19	6.5	6.7	6.3	6.5	40.4	39.8	40.2	40.1	81.4	64.7	79.9	75.3	6	11	14	19	0	0	0	
June	10	16	2	9	28	11	12	2	0	5.71	1.40	27, 28	4.3	5.7	4.6	4.9	54.9	56.3	54.8	55.3	83.3	67.3	82.9	77.8	7	16	7	16	0	0	0	
July	12	19	2	4	24	18	10	4	0	5.63	1.04	3	4.4	5.4	3.9	4.5	58.5	59.2	59.7	59.1	85.3	69.4	86.2	80.3	10	15	6	20	0	0	0	
Aug	16	25	4	1	18	12	10	6	1	0.59	.40	12, 13	2.3	3.5	2.9	2.9	54.9	55.8	56.0	55.6	83.6	58.6	78.5	73.6	17	11	8	4	0	0	0	
Sept	12	17	15	9	17	7	4	8	1	2.24	.76	24, 25	6.0	5.4	4.7	5.3	48.2	49.3	48.2	48.6	87.1	63.6	79.2	76.6	10	9	11	14	0	0	0	First frost on Sept. 3d.
Oct	13	21	14	6	14	6	8	5	6	3.47	.92	29, 30	6.6	7.0	6.5	6.7	39.0	39.3	40.0	39.4	84.4	65.8	79.9	76.7	4	10	17	17	0	1	0	
Nov	1	4	3	4	31	17	13	17	0	2.58	1.21	21	5.6	5.9	5.1	5.5	82.0	33.9	83.1	33.0	86.1	71.9	82.8	80.3	7	13	10	9	3	13	0	
Dec	2	5	3	4	23	15	14	23	4	1.30	.29	7	6.8	7.0	6.2	6.7	19.5	22.9	22.0	21.5	82.0	74.0	82.6	79.5	3	15	13	14	12	24	0	
Sums ..	132	175	59	66	233	175	130	101	24	36.98	....	......	68.3	74.4	60.0	67.4	419.1	443.3	435.4	432.6	1,011.2	837.9	988.5	945.7	90	148	127	162	82	141	0	
	Percentages.																								Percentages.							
Means .	12.1	16.0	5.4	6.0	21.3	16.0	11.9	9.2	2.2	....	....	......	5.7	6.2	5.0	5.6	34.9	36.9	36.3	36.0	84.3	69.8	82.3	78.8	24.7	40.5	34.8	44.4	22.5	38.6	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.38 a. m., 2.38 p. m., and 10.38 p. m., local time.

Correction for instrumental error of barometer used: From 6.38 a. m., January 1, to 10.38 p. m., December 31, inclusive, —.001 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.730; February, 0.730; March, 0.720; April, 0.700; May, 0.680; June, 0.670; July, 0.660; August, 0.660; September, 0.670; October, 0.690; November, 0.720; December, 0.730.

M. H. PERRY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

PORTLAND, ME.

[Latitude, 43° 39′ N.; longitude, 70° 15′ W. Magnetic variation, 13° 15′ W. Elevation of barometer above sea-level, 45 feet. Elevation of exposed thermometer above ground, 28 feet. Elevation of rain-gauge above ground, 77 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.119	30.069	30.087	30.092	30.496	19	29.407	21	1.089	17.6	26.1	20.6	21.4	44.0	14	1.0	5	43.0	28.6	12.7	2,095	2,313	2,380	6,788	46	SE.	31
Feb	30.136	30.068	30.129	30.111	30.722	24	29.398	7	1.324	21.3	30.9	24.9	25.7	54.0	17	7.0	10	47.0	34.4	16.8	1,846	2,281	2,005	6,132	24	W., NW.	1, 26
Mar	29.844	29.771	29.810	29.808	30.469	6	28.907	10	1.562	24.8	34.6	27.4	28.9	52.0	2, 15	−0.5	9	52.5	37.4	18.5	1,930	2,839	2,810	7,579	32	NE.	10
Apr	29.939	29.892	29.924	29.918	30.445	14	29.514	6	.931	40.5	50.8	42.7	44.7	66.0	{10, 18}	22.0	1	44.0	53.3	36.0	1,663	2,403	1,754	5,820	25	S.	27
May	29.929	29.870	29.895	29.898	30.396	2	29.517	29	.879	51.7	60.5	52.4	54.9	73.0	8, 18	37.0	1	36.0	63.2	46.9	1,554	2,407	2,045	6,006	26	S.	26
June	29.928	29.888	29.889	29.902	30.470	2	29.350	11	1.120	63.6	71.9	63.8	66.4	86.0	24	51.0	3	35.0	75.0	58.7	1,341	2,163	1,599	5,108	24	N., W.	{13 14}
July	29.881	29.828	29.841	29.850	30.132	21	29.552	7	.580	66.2	76.4	66.9	69.8	89.0	7	53.0	1	36.0	79.0	61.7	1,466	2,064	1,780	5,310	24	SW.	2
Aug	29.952	29.908	29.932	29.931	30.162	15	29.590	3	.672	64.2	74.5	64.9	67.9	87.0	21	48.5	29	38.5	76.5	60.0	1,019	1,714	1,513	4,246	16	NW.	26
Sept	30.015	29.981	29.979	29.092	30.373	11	29.185	25	1.188	55.3	65.5	56.8	59.2	78.5	20	43.0	30	35.5	67.2	51.1	1,160	1,625	1,457	4,242	28	W.	25
Oct	30.125	30.071	30.095	30.097	30.606	17	29.054	30	1.552	44.6	53.6	46.5	48.2	78.0	14	29.0	23	49.0	55.8	40.4	1,398	1,809	1,609	4,816	31	NW.	30
Nov	30.020	29.980	29.994	29.998	30.529	25	29.267	12	1.262	38.6	46.4	40.9	42.0	62.0	22	17.0	29	45.0	48.9	34.4	1,897	2,322	1,931	6,150	37	N.	7
Dec	29.994	29.965	29.975	29.978	30.606	23	28.962	28	1.644	24.6	30.9	27.5	27.7	52.0	9	−8.1	23	60.1	34.0	19.2	1,943	2,378	1,989	6,310	32	W.	28
Sums..	359.882	359.291	359.550	359.575	......	...	......	..	......	513.0	622.1	535.3	556.8	....	....	.....	....	....	658.9	456.4	19,312	26,318	22,872	68,502	....	....	....
																					Averages.						
Means	29.990	29.941	29.962	29.965	30.722	*24	28.907	†10	......	42.8	51.8	44.6	46.4	89.0	‡7	−8.1	§23	....	54.5	38.0	1,609.0	2,193.0	1,906.0	......	....	....	....

* February. † March. ‡ July. § December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	29	11	2	1	1	8	21	20	0	2.53	1.31	20, 21	4.9	6.5	4.5	5.3	8.8	14.3	11.7	11.6	67.6	61.9	68.5	66.0	8	14	9	13	18	31	0	
Feb	18	4	3	0	7	11	23	18	0	2.81	0.74	3, 4	4.7	5.0	4.5	4.7	12.3	16.8	15.5	14.9	68.1	56.1	67.0	63.7	8	14	6	14	9	27	0	
Mar	17	11	3	3	9	13	17	20	0	1.58	0.53	6, 7	5.1	5.2	3.5	4.6	14.1	16.1	15.7	15.3	63.9	47.9	61.4	57.7	12	11	8	6	10	28	0	
Apr	9	12	2	8	15	8	14	22	0	1.33	0.45	20	4.9	4.8	4.2	4.6	28.1	30.6	30.4	29.7	62.1	48.9	62.4	57.8	10	13	7	10	0	5	0	Last frost Apr. 30.
May	9	12	16	7	24	10	8	5	2	2.91	0.91	22, 23	5.8	6.0	4.9	5.6	42.2	42.3	42.6	42.4	71.8	55.2	70.5	65.8	7	14	10	15	0	0	0	
June	9	4	8	11	23	17	14	3	1	2.94	0.91	19	4.4	5.7	4.1	4.7	54.7	56.0	56.5	55.7	74.0	59.7	78.0	70.6	11	15	4	15	0	0	0	
July	5	4	8	9	17	21	18	10	1	5.05	1.12	4	3.6	5.2	3.9	4.2	57.5	60.6	59.4	59.2	75.1	59.9	77.4	70.8	10	17	4	13	0	0	0	
Aug	13	5	2	6	13	19	21	13	1	0.36	0.21	2	2.5	4.8	2.3	3.2	55.0	56.3	55.2	55.5	73.0	55.1	71.8	66.6	18	10	3	3	0	0	0	
Sept	8	6	5	9	18	11	15	13	5	2.68	1.29	24, 25	3.9	4.8	4.0	4.2	47.4	49.9	48.1	48.5	75.6	60.5	73.6	69.9	12	11	7	12	0	0	0	First frost Sept. 27.
Oct	32	5	7	4	11	9	18	6	1	3.51	1.25	29	4.9	5.8	4.2	5.0	37.3	38.7	37.4	37.8	76.2	61.3	71.9	69.8	12	8	11	10	0	2	0	
Nov	16	5	8	4	12	19	18	12	1	3.66	2.65	26, 27	5.5	6.3	3.9	5.2	30.2	34.3	32.4	32.3	72.5	64.1	71.7	69.4	6	19	5	11	1	9	0	
Dec	26	10	2	3	5	16	14	16	1	2.63	0.49	24	6.3	6.2	4.2	5.6	17.8	22.4	20.2	20.1	75.0	71.1	73.7	73.3	8	13	10	16	11	27	0	
Sums	191	89	61	65	155	162	201	158	13	31.99	....	......	56.5	66.3	48.2	56.9	405.4	438.3	425.1	423.0	854.9	701.7	847.9	801.4	122	159	84	138	49	129	0	
	Percentages.																								Percentages.							
Means	17.4	8.1	5.6	5.9	14.2	14.8	18.4	14.4	1.2	....	....	......	4.7	5.5	4.0	4.7	33.8	36 5	35.4	35.2	71.2	58.5	70.7	66.8	33.4	43.6	23.0	37.8	13.4	35.3	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.27 a. m., 3.27 p. m., and 11.27 p. m., local time.

Correction for instrumental error of barometer used: From 7.27 a. m., January 1, to 11.27 p. m., December 31, inclusive, +.001 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.050; February, 0.050; March, 0.050; April, 0.050; May, 0.050; June, 0.050; July, 0.050; August, 0.050; September, 0.050; October, 0.050; November, 0.050; December, 0.050.

W. W. EICHELBERGER,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PORTLAND, OREG.

[Latitude, 45° 32′ N., longitude, 122° 43′ W. Magnetic variation, 21° E. Elevation of barometer above sea-level, 67 feet. Elevation of exposed thermometer above ground, 45 feet. Elevation of rain-gauge above ground, 60 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.			Monthly mean.	Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.		Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		°	*In.*	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30. 146	30. 119	30. 110	30. 127	30. 662	19	29. 468	24	1. 194	35. 4	39. 1	38. 1	37. 3	55. 6	31	8. 0	19	47. 6	44. 3	32. 5	1, 267	1, 433	1, 316	4, 016	30	E.	19
Feb.[1]	30. 177	30. 165	30. 153	30. 165	30. 649	4	29. 345	12	1. 304	28. 9	36. 6	33. 4	33. 0	60. 0	27	7. 0	5	53. 0	42. 0	25. 8	715	1, 005	1, 404	3, 124	30	E.	5
Mar	29. 962	29. 967	29. 928	29. 952	30. 281	15	29. 266	28	1. 015	43. 9	55. 7	51. 6	50. 4	75. 0	21	34. 0	7	41. 0	61. 8	41. 1	700	935	1, 115	2, 750	22	S.	30
Apr	29. 928	29. 920	29. 917	29. 922	30. 259	22	29. 503	19	. 756	43. 7	54. 1	49. 7	49. 2	74. 2	25	36. 2	23	38. 0	59. 0	42. 1	1, 033	1, 371	1, 624	4, 028	24	S.	11 14 30
May	29. 956	29. 947	29. 922	29. 942	30. 326	24	29. 582	12	. 744	49. 8	63. 2	59. 3	57. 4	84. 0	11	40. 0	15	44. 0	69. 8	48. 4	1, 151	1, 330	1, 803	4, 284	24	W.	4
June	30. 023	30. 015	29. 979	30. 006	30. 351	5	29. 745	16	. 606	54. 1	69. 5	66. 5	63. 4	87. 0	16	44. 0	1	43. 0	76. 0	53. 5	983	1, 069	1, 754	3, 806	16	NW.	10, 13
July	30. 006	29. 988	29. 934	29. 976	30. 175	19	29. 671	7	. 504	57. 5	72. 2	71. 1	66. 9	94. 0	7	48. 0	15	46. 0	80. 0	57. 0	1, 025	1, 116	1, 706	3, 847	16	S.	19, 29
Aug	30. 016	30. 016	29. 982	30. 005	30. 273	18	29. 762	3	. 511	55. 7	67. 8	64. 8	62. 8	80. 0	22	43. 5	31	36. 5	73. 8	54. 2	508	657	1, 124	2, 289	14	N.	19
Sept	30. 944	29. 934	29. 916	29. 931	30. 179	19	29. 557	20	. 622	54. 4	66. 7	62. 6	61. 2	87. 0	21	44. 6	19	42. 4	72. 3	52. 6	688	901	1, 112	2, 701	20	NE.	19
Oct	29. 960	29. 972	29. 265	29. 966	30. 305	30	29. 374	25	. 931	47. 4	54. 3	50. 6	50. 8	64. 2	15	37. 0	31	27. 2	58. 4	45. 8	1, 077	1, 297	1, 356	3, 730	27	S.	25
Nov	30. 028	30. 051	30. 044	30. 041	30. 378	11	29. 474	24	. 904	44. 1	49. 3	46. 1	46. 5	60. 0	10	33. 5	3	26. 5	52. 8	42. 0	1, 311	1, 278	1, 328	3, 917	32	S.	26
Dec.[1]	30. 041	30. 043	30. 050	30. 045	30. 483	31	29. 322	25	1. 161	39. 4	44. 6	41. 4	41. 8	56. 4	25	24. 2	31	32. 2	49. 0	36. 8	1, 237	1, 224	1, 415	3, 876	34	S.	24
Sums	360. 187	360. 137	359. 900	360. 076	.....	....	......	....	......	554. 3	673. 1	635. 2	620. 9	..	....	.....	....	....	739. 2	531. 8	11, 695	13, 616	17, 057	42, 368	....	....	.....
																					Averages.						
Means.	30. 016	30. 011	29. 992	30. 006	30. 662	*19	29. 266	†28	.....	46. 2	56. 1	52. 9	51. 7	94. 0	‡7	7. 0	§5	....	61. 6	44. 3	974. 6	1, 134. 7	1, 421. 4	......	....	....	.....

[1] One 7 a. m. observation missed.

* January.

† March.

‡ July.

§ February.

Month.	Winds at 7 a.m., 3 and 11 p.m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a.m.	3 p.m.	11 p.m.	Mean.	7 a.m.	3 p.m.	11 p.m.	Mean.	7 a.m.	3 p.m.	11 p.m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	6	4	9	4	33	7	1	10	19	13.71	6.86	5, 6	7.5	7.6	6.7	7.3	31.7	33.8	34.0	33.2	86.3	81.5	85.3	84.4	4	10	17	19	3	12	0	
Feb[1]	10	8	22	1	8	1	4	9	20	2.34	.89	18, 19	4.4	4.8	2.9	4.0	21.2	25.2	24.3	23.6	73.7	65.4	70.1	69.7	11	11	5	9	5	15	0	
Mar	7	1	7	2	18	2	4	30	22	6.40	2.25	26	4.0	4.6	3.4	4.0	39.5	42.2	42.8	41.5	85.1	62.0	73.6	73.6	18	3	10	10	0	0	0	
Apr	5	0	1	2	30	7	6	16	23	7.88	1.34	2	7.0	8.8	6.5	7.4	40.1	40.4	41.2	40.6	87.9	61.4	73.5	74.3	2	12	16	20	0	0	0	
May	11	8	1	1	22	8	2	33	12	1.67	.51	10	6.2	6.4	4.6	5.7	44.6	44.5	44.8	44.6	81.9	52.5	60.8	65.1	6	14	11	8	0	0	0	
June.....	20	2	3	2	7	5	8	33	15	.08	.06	3	5.0	4.2	2.1	3.8	47.7	48.5	50.5	48.9	79.5	49.3	57.7	62.2	14	12	4	2	0	0	0	
July.....	25	0	0	0	6	1	5	40	16	.00	.00	0	1.1	1.5	0.5	1.0	50.5	53.1	54.5	52.7	78.3	51.4	57.0	62.2	25	5	1	0	0	0	2	
Aug	21	0	1	0	7	4	10	21	29	.19	.18	1, 2	1.9	1.6	0.9	1.5	51.5	52.1	54.8	52.8	86.5	58.2	71.0	71.9	24	5	2	3	0	0	0	
Sept	13	2	5	1	12	10	13	11	23	.67	.85	17, 18	1.6	3.3	2.8	2.6	50.6	50.1	50.9	50.5	86.1	58.5	71.3	72.0	19	7	4	11	0	0	0	
Oct	7	2	2	3	25	10	9	20	15	3.01	1.07	1	7.1	8.3	5.5	7.0	44.3	44.6	44.9	44.6	89.4	71.8	81.9	81.0	4	11	16	17	0	0	0	
Nov	3	0	0	0	42	15	9	8	13	8.26	3.62	26, 27	7.1	9.2	7.7	8.0	41.9	43.2	42.5	42.5	92.3	80.5	87.8	86.9	1	11	18	22	0	0	0	
Dec[1].....	3	4	11	2	36	15	6	1	14	6.34	1.75	24, 25	6.5	6.0	5.0	5.8	35.7	37.5	37.1	36.8	87.5	77.5	85.6	83.5	6	13	11	14	0	3	0	
Sums ..	131	26	62	18	246	85	72	232	221	51.45	......	......	59.4	66.3	48.6	58.1	499.3	515.2	522.3	512.3	1,014.5	770.0	875.6	886.8	134	114	115	135	8	30	2	
	Percentages.																								Percentages.							
Means .	12.0	2.4	[illegible].7	1.6	22.5	7.8	6.6	21.2	20.2	......	......	......	5.0	5.5	4.0	4.8	41.6	42.9	43.5	42.7	84.5	64.2	73.0	73.9	36.9	31.4	31.7	37.0	2.2	8.2	0.5	

[1] One 7 a.m. observation missed.

NOTE.—7 a.m., 3 p.m., and 11 p.m., Washington time, correspond with 3.57 a.m., 11.57 a.m., and 7.57 p.m., local time.

Correction for instrumental error of barometer used: From 3.57 a.m., January 1, to 7.57 p.m., December 31, inclusive, —.028 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.070; February, 0.070; March, 0.070; April, 0.070; May, 0.070; June, 0.070; July, 0.070; August, 0.070; September, 0.070; October, 0.070; November, 0.070; December, 0.070.

M. L. HEARNE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PRESCOTT, ARIZ.

[Latitude, 34° 33′ N. longitude, 112° 28′ W. Magnetic variation, 14° E. Elevation of barometer above sea-level, 5,340 (B) feet. Elevation of exposed thermometer above ground, 10 feet. Elevation of rain-gauge above ground, 3 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Winds.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	24.791	24.774	24.798	24.788	25.109	8	24.394	19	.715	24.0	45.4	34.1	34.5	64.3	31	—8.5	20	72.8	44.3	32.5	859	1,253	1,905	4,017	40	SW.	17
Feb	24.781	24.739	24.757	24.742	25.131	17	24.325	15	.806	27.6	47.4	37.9	37.6	63.5	19, 28	2.5	16	61.0	42.0	25.8	1,175	1,585	2,282	5,042	38	SW.	2
Mar	24.752	24.739	24.741	24.744	24.956	2	24.504	29	.452	37.9	57.0	47.3	47.4	72.0	26	31.5	1	40.5	61.8	41.1	1,047	1,367	2,321	4,735	32	N.	19
Apr	24.654	24.664	24.663	24.660	25.075	15	24.286	12	.789	36.1	58.7	48.9	47.9	76.0	16	23.2	15	52.8	59.0	42.1	1,491	2,429	3,375	7,295	40	S.	12
May	24.719	24.721	24.727	24.722	24.937	20	24.521	16	.416	43.1	68.9	57.4	56.5	88.8	27	29.0	3	59.8	69.8	48.4	1,185	2,820	3,103	6,608	31	SW.	1
June	24.782	24.776	24.771	24.776	24.897	30	24.603	8	.294	52.4	84.1	70.6	69.0	98.5	25	41.5	16	57.0	76.0	58.5	827	1,757	2,919	5,503	28	S., SW.	11, 15
July	24.857	24.852	24.844	24.851	24.966	10	24.706	3	.260	60.9	79.9	70.4	70.4	94.8	18	53.5	7, 8	41.3	80.0	57.0	788	1,297	2,000	4,085	24	S.	3
Aug	24.879	24.885	24.874	24.879	24.977	28	24.761	11	.216	60.1	80.5	69.8	70.1	93.5	26	52.0	13	41.5	73.8	54.2	687	1,028	1,836	3,551	26	N.	22
Sept	24.847	24.888	24.833	24.839	24.981	5	24.626	13	.355	50.5	79.8	63.6	64.5	95.0	2	36.5	23	58.5	72.3	52.6	607	1,282	1,758	3,647	25	NE.	22
Oct	24.744	24.751	24.766	24.754	24.974	31	24.456	2	.518	39.1	62.1	48.6	49.9	75.5	1	23.0	29	52.5	58.4	45.8	921	1,719	2,353	4,993	29	S.	2
Nov	24.818	24.809	24.823	24.817	25.076	29	24.551	19	.525	28.9	57.4	41.3	42.5	73.0	2	18.5	26, 27	54.5	52.8	42.0	675	1,314	1,649	3,638	28	E.	12
Dec	24.817	24.823	24.831	24.824	25.087	8	25.550	4	.537	32.7	48.9	38.8	40.1	50.8	17	19.5	8	40.3	49.0	36.8	1,059	1,464	1,719	4,242	30	S.	4
Sums...	297.391	297.371	297.428	297.396	......	....	......	....	....	493.3	769.6	628.7	630.4	....	....	......	......	....	739.2	581.8	11,321	18,815	27,220	57,356	....	....	......
																					Averages.						
Means..	24.783	24.781	24.786	24.783	25.181	*17	24.286	†12	....	41.1	64.1	52.4	52.5	98.5	‡25	—8.5	§20	....	61.6	44.8	943.4	1567.9	2268.3	......	....	....	......

B.—Elevation determined by barometer. * February. † April. ‡ June. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	12	8	6	6	13	27	12	6	3	.31	.10	3, 4, 19	3.0	4.1	1.8	3.0	18.0	19.4	22.0	19.8	77.9	38.8	62.4	59.7	18	11	2	5	1	27	0	
Feb	6	4	14	1	24	24	2	4	5	.63	.28	15	3.2	3.2	3.5	3.3	20.9	22.3	24.9	22.7	76.0	39.1	59.9	58.3	15	8	5	5	1	18	0	
Mar	5	4	9	3	44	12	5	4	7	2.33	.94	3, 4	4.0	5.4	3.6	4.3	32.6	31.4	34.9	33.0	81.3	40.6	64.1	62.0	12	12	7	13	0	1	0	
Apr	3	3	0	2	50	15	9	3	5	.86	.61	4, 5	1.9	2.9	1.1	2.0	24.9	20.8	23.0	22.9	65.1	36.5	39.1	43.6	22	6	2	4	0	9	0	
May	6	0	6	2	53	15	3	2	6	.15	.09	16, 17	1.2	1.9	0.7	1.3	26.8	25.5	26.4	26.2	54.6	22.6	33.1	36.8	26	5	0	4	0	1	0	
June	1	2	3	1	28	34	7	4	10	.09	.03	29	0.3	0.5	0.5	0.4	30.7	29.4	34.0	31.4	44.1	14.6	27.1	28.6	28	2	0	2	0	0	14	
July	2	3	4	3	21	29	16	4	11	3.20	.88	30, 31	4.5	5.2	3.5	4.4	52.2	50.9	53.6	52.2	74.5	40.4	58.3	57.7	11	15	5	21	0	0	7	
Aug	4	6	6	3	27	26	10	6	5	3.26	1.02	19	2.8	4.8	4.1	3.9	52.8	52.5	56.0	53.8	77.7	40.2	63.6	60.5	14	12	5	10	0	0	4	
Sept	1	5	11	10	24	25	10	0	4	.33	.30	9	0.4	3.0	1.2	1.5	36.6	34.5	37.2	36.1	59.4	21.2	39.6	40.1	22	8	0	3	0	0	4	
Oct	3	5	3	1	19	51	4	4	3	.43	.35	15, 16	2.0	3.0	1.4	2.1	30.1	32.1	30.7	31.0	70.6	34.8	51.2	52.2	20	9	2	3	0	7	0	
Nov	2	10	8	1	15	37	10	3	4	(¹)	(¹)	9	1.1	1.8	0.4	1.1	19.6	26.7	22.9	23.1	67.4	31.4	48.4	49.1	26	4	0	0	0	25	0	
Dec	3	13	11	1	15	39	10	1	0	4.54	1.71	20, 21	2.6	3.4	3.0	3.0	27.4	28.7	28.7	28.3	80.9	48.1	67.6	65.5	18	9	4	8	0	18	0	
Sums ...	48	63	81	34	333	334	98	41	63	16.13	.....	....	27.0	39.2	24.8	30.3	372.6	374.2	394.3	380.5	829.5	398.3	614.4	614.1	232	101	32	78	2	106	29	
	Percentages.																								Percentages.							
Means ..	4.4	5.8	7.3	3.1	30.4	30.5	8.9	3.7	5.7	....	.....	....	2.2	3.3	2.1	2.5	31.0	31.2	32.9	31.7	69.1	33.2	51.2	51.2	63.6	27.7	8.8	21.4	0.5	29.0	7.9	

[1] Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.38 a. m., 12.38 p. m., and 8.38 p. m., local time.
Correction for instrumental error of barometer used: From 4.38 a.m., January 1, to 8.38 p. m., December 31, inclusive, —.010 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 5.38; February, 5.36; March, 5.34; April, 5.22; May, 5.10; June, 5.02; July, 4.99; August, 4.98; September, 5.10; October, 5.16; November, 5.34; December, 5.37.

N. D. LANE,
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APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

PROVINCETOWN, MASS.

[Latitude, 42° 3′ N.; longitude, 70° 11′ W. Magnetic variation, 11° 30′ W. Elevation of thermometer above sea-level, 26 feet. Elevation of exposed thermometer above ground, 23 feet. Elevation of rain-gauge above ground, 35 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	In.	In.	In.	In.	In.		In.		In.	°	°	°	°	°		°		°	°	°	Miles.	Miles.	Miles.	Miles.			
Jan	30.139	30.104	30.116	30.120	30.502	16	29.393	10	1.109	27.2	29.8	27.4	28.1	46.5	31	3.5	23	43.0	33.4	22.2	2,706	3,180	3,111	8,997	48	SE.	31
Feb	30.173	30.141	30.200	30.171	30.744	24	29.502	7	1.242	28.2	32.2	28.7	29.7	44.5	17	13.5	27	31.0	35.3	23.5	2,457	2,903	2,485	7,845	34	SE.	25
Mar	29.898	29.825	29.867	29.863	30.462	6	28.917	10	1.545	28.3	32.9	29.2	30.1	51.5	15	7.0	5	44.5	37.3	23.0	3,084	3,612	3,134	9,830	40	SE.	6
Apr	29.975	29.946	29.975	29.965	30.472	14	29.559	6	.913	40.2	45.8	39.4	41.8	60.0	18	25.5	2	34.5	49.6	35.3	1,965	2,626	1,956	6,547	28	S.	19
May.....	29.959	29.923	29.948	29.943	30.434	1	29.533	15	.901	52.7	58.3	50.8	53.9	74.5	21, 30	37.5	1	37.0	62.4	46.4	2,100	2,577	2,298	6,975	32	SW.	15
June	29.982	29.953	29.960	29.965	30.501	2	29.488	11	1.013	65.5	72.5	62.0	66.7	87.0	24	50.0	2	37.0	76.7	58.4	1,846	2,312	2,141	6,299	27	S.	19
July	29.939	29.906	29.916	29.920	30.194	21	29.682	7	.512	67.4	75.4	65.6	69.5	93.0	6	52.0	10	41.0	79.7	61.1	1,858	2,239	1,978	6,075	27	S.	29
Aug.....	29.997	29.962	29.979	29.979	30.299	15	29.673	8	.626	66.0	73.5	64.5	68.0	90.5	21	53.0	30	37.5	76.8	60.7	1,614	2,071	1,849	5,534	27	NE.	29
Sept....	30.055	30.032	30.043	30.039	30.389	10	29.392	24	.997	59.5	64.7	58.2	60.8	77.5	7, 14	45.5	11	32.0	67.8	53.0	1,612	1,870	1,739	5,221	26	W.	25
Oct......	30.157	30.106	30.129	30.131	30.612	17	29.272	30	1.340	49.1	52.5	48.6	50.1	73.0	11	34.1	17	38.9	55.8	43.3	2,202	2,649	2,207	7,058	42	NE.	24
Nov	30.087	30.055	30.066	30.069	30.527	25	29.512	12	1.015	42.4	45.7	43.1	43.7	62.0	6	22.8	29	39.2	50.1	37.5	2,562	2,811	2,674	8,047	39	SE.	27
Dec	30.037	29.998	30.006	30.014	30.605	23	29.157	27	1.448	31.9	34.3	32.5	32.9	50.0	9	—0.4	23	50.4	39.6	26.1	3,061	3,169	2,872	9,102	37	W.	28
Sums..	360.398	359.949	360.195	360.179	......	....	......	...	......	558.4	617.6	550.0	575.3	....	....	.....	....	....	664.5	190.5	27,067	32,019	28,444	87,530	...	....	......
																					Averages.						
Means.	30.033	29.996	30.016	30.015	30.744	*24	28.917	†10	.....	46.5	51.5	45.8	47.9	93.0	‡6	—0.4	§23	....	55.4	40.9	2,255.6	2,668.2	2,370.3	......	.....	....	......

* February. † March. ‡ July. § December.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum below 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	9	10	8	9	5	13	15	22	2	4.76	1.30	20, 21	7.1	6.9	5.9	6.6	21.3	22.7	20.9	21.6	78.0	74.9	76.1	76.8	8	15	13	18	10	28	0	
Feb	6	8	1	11	6	17	26	14	0	5.00	1.15	25	6.1	5.0	5.2	5.4	21.2	23.3	21.4	22.0	74.8	69.9	73.7	72.8	5	17	6	14	4	26	0	
Mar	11	4	3	4	9	13	18	33	3	2.16	1.18	10	5.6	4.7	3.9	4.7	20.6	22.4	22.0	21.7	72.4	65.9	74.1	70.8	9	18	4	5	5	26	0	
Apr	13	18	9	7	13	15	6	14	0	3.09	.85	29	5.1	5.3	3.9	4.8	33.5	33.3	34.5	33.8	78.1	64.4	82.9	75.1	13	10	7	13	0	3	0	
May	7	8	10	15	11	27	5	10	0	3.45	1.37	22	4.9	6.0	4.5	5.1	45.0	45.7	45.8	45.5	76.7	65.7	83.8	75.4	7	18	6	10	0	0	0	
June	2	3	7	9	25	27	13	4	0	1.39	.30	27, 28	2.7	4.9	4.4	4.0	58.6	59.0	57.7	58.4	79.4	64.5	86.2	76.7	11	16	3	13	0	0	0	
July	7	8	4	4	25	22	12	11	0	4.33	2.34	28	3.9	3.7	3.1	3.6	60.8	60.0	60.5	60.4	80.1	61.0	84.0	75.0	12	15	4	8	0	0	1	
Aug	9	13	12	4	3	27	13	9	3	.71	.33	16, 17	3.7	4.2	3.7	3.9	57.8	57.8	58.1	57.9	75.6	60.0	80.4	72.0	13	12	6	7	0	0	1	
Sept	10	17	10	7	9	15	11	7	4	1.87	.50	24, 25	4.7	5.0	5.0	4.9	53.0	51.9	52.1	52.3	80.2	64.9	81.0	75.4	6	17	7	12	0	0	0	
Oct	22	15	10	8	9	8	6	9	6	7.45	2.55	24	4.4	5.7	4.6	4.9	41.0	42.2	40.9	41.4	75.3	70.3	75.2	73.6	11	12	8	18	0	0	0	
Nov	10	4	4	2	13	25	12	19	1	3.58	2.37	26, 27	5.5	5.4	4.1	5.0	36.9	36.1	36.8	36.6	81.2	70.1	79.4	76.9	8	15	7	15	0	8	0	
Dec	10	12	4	5	11	12	14	23	2	2.60	.52	27, 28	8.0	6.2	6.7	7.0	26.8	27.9	27.1	27.3	81.4	78.4	80.5	80.1	2	16	13	17	4	21	0	
Sums	116	110	82	85	139	221	146	175	21	40.39	....	......	61.7	63.0	55.0	59.9	476.5	482.8	477.8	478.9	933.2	810.0	957.5	900.1	100	181	84	150	23	112	2	
	Percentages.																								Percentages.							
Means	10.6	10.0	7.5	7.8	12.7	20.2	13.3	16.0	1.9	.....	....	.....	5.1	5.2	4.6	5.0	39.7	40.2	39.8	30.9	77.8	67.5	79.8	75.0	27.4	49.6	23.0	41.1	6.3	30.7	0.5	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.27 a. m., 3.27 p. m., and 11.27 p. m., local time.

Correction for instrumental error of barometer used: From 7.27 a. m., January 1, to 11.27 p. m., December 31, inclusive, —.001 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.03; February, 0.03; March, 0.03; April, 0.03; May, 0.03; June, 0.03; July, 0.03; August, 0.03; September, 0.03; October, 0.03; November, 0.03; December, 0.03.

CHAS. N. KITCHEL,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

PUNTA RASA, FLA.

[Latitude, 26° 29′ N.; longitude, 82° 1′ W. Magnetic variation, 4° E. Elevation of barometer above sea-level, 14 feet. Elevation of exposed thermometer above ground, 39 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan.[1]	30.152	30.114	30.163	30.143	30.453	23	29.796	9	0.657	63.1	70.5	65.0	66.2	79.0	26	41.0	12	38.0	72.9	61.2	2,238	2,851	2,501	7,590	42	NW.	9
Feb	30.202	30.148	30.113	30.188	30.454	28	30.016	23	0.438	65.7	77.5	68.9	70.7	83.0	9, 13	52.0	28	31.0	78.2	64.9	1,912	2,474	2,329	6,715	30	NE.	27
Mar	30.063	30.021	30.056	30.047	30.387	1	29.738	20	0.649	62.4	72.4	66.5	67.1	80.0	31	54.5	1 12 21 28	25.5	74.6	60.9	2,614	2,820	2,776	8,210	40	SW.	20
Apr	30.001	29.968	30.004	29.991	30.166	3	29.753	22	0.413	71.8	79.9	73.6	75.1	86.5	18	61.0	17 26	25.5	82.4	68.4	2,234	2,962	2,987	8,183	34	NW.	16
May	30.026	29.983	30.020	30.010	30.158	24	29.665	21	0.493	72.2	79.9	73.7	75.3	87.5	10	57.5	24	30.0	82.8	68.9	2,117	2,452	2,695	7,264	46	SW.	1
June[2]																											
July																											
Aug																											
Sept																											
Oct																											
Nov																											
Dec																											
Sums																											
Means																											

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan.[1]	5	25	14	13	24	5	1	5	0	1.29	0.58	9	5.7	5.6	4.9	5.4	59.8	61.6	60.2	60.5	89.8	74.7	85.1	83.2	9	11	10	6	0	0	0	
Feb	5	18	38	3	8	8	1	3	0	0.01	0.01	10	3.6	4.5	3.0	3.7	61.3	62.3	62.0	61.9	86.8	60.6	79.5	75.6	15	10	3	1	0	0	0	
Mar	8	15	10	7	20	9	9	15	0	6.64	3.46	19, 20	5.4	5.1	3.9	4.8	55.7	56.8	58.2	56.9	79.4	60.7	75.5	71.9	10	15	6	7	0	0	0	
Apr	7	14	16	7	14	19	6	6	1	2.70	2.05	4	3.5	4.6	1.7	3.3	66.0	65.7	65.6	65.8	82.7	63.3	77.0	74.3	11	18	1	5	0	0	0	
May	6	17	24	7	3	12	14	10	0	2.62	1.46	1	4.4	4.9	3.1	4.1	63.7	62.8	64.2	63.6	75.5	58.2	72.5	68.7	13	14	4	9	0	0	0	
June[2]	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Aug	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Sept	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Oct	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Nov	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Dec	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Sums ...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Means ..	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	

[1] One 7 a. m. observation missed.

[2] Station closed June 15.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.40 a. m., 2.40 p. m., and 10.40 p. m., local time.

Correction for instrumental error of barometer used: From 6.40 a. m., January 1, to 10.40 p. m., May 31, inclusive, —.012 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.01; February, 0.01; March, 0.01; April, 0.01; May, 0.01; June, 0.01; July, 0.01; August, 0.01; September, 0.01; October, 0.01; November, 0.01; December, 0.01.

W. J. EVANS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

RED BLUFF, CAL.

[Latitude, 40° 10′ N.; longitude, 122° 15′ W. Magnetic variation, 18° E. Elevation of barometer above sea-level, 332 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.913	29.919	29.884	29.905	30.263	8	29.486	2	.777	35.4	45.7	42.5	41.2	65.0	31	19.0	19	46.0	51.2	29.5	1,118	1,382	1,515	4,015	34	N.	19
Feb	29.780	29.799	29.759	29.779	30.342	17	29.255	13	1.087	37.3	51.5	46.6	45.1	80.0	19	23.0	3, 4	57.0	57.2	34.8	1,313	1,579	1,419	4,311	34	S.	18
Mar	29.648	29.658	29.615	29.640	29.870	1	29.207	27	.663	48.9	66.0	60.0	58.8	83.0	16	48.0	31	40.0	71.1	46.7	1,335	1,587	1,874	4,796	34	S.	26
Apr	29.672	29.680	29.632	29.661	30.016	14, 15	29.297	19	.719	48.4	62.4	57.6	56.1	79.0	26, 28	36.0	13	43.0	66.8	46.1	1,898	2,248	2,590	6,736	38	S.	19
May ...	29.619	29.622	29.579	29.607	29.950	18	29.345	28, 29	.605	55.2	71.3	66.3	64.3	99.0	27	41.0	17	58.0	75.6	53.4	1,495	1,923	2,256	5,674	28	S., N.	4, 24, 25
June	29.592	29.582	29.510	29.561	29.833	3	20.268	10	.565	67.1	89.2	84.6	80.3	104.0	9	54.0	2	50.0	93.2	65.4	1,662	1,639	2,177	5,478	29	N.	5
July	29.559	29.548	29.469	29.525	29.764	29	29.252	3	.512	70.5	94.4	89.9	84.9	107.0	2, 3	58.0	29	44.0	98.4	67.3	1,184	1,090	1,628	3,902	20	N.	2
Aug.....	29.589	29.592	29.525	29.560	29.749	16	29.380	3	.369	65.9	89.8	84.1	79.9	101.0	19	56.0	11, 12	45.0	94.0	62.7	1,022	1,007	1,666	3,695	20	N.	18
Sept.....	29.566	29.574	29.528	29.556	29.697	1	29.364	14	.333	64.5	84.4	77.3	75.4	103.0	22	53.0	27	50.0	89.6	61.4	1,234	1,412	1,459	4,105	*24	N., S.	19, 29
Oct......	29.654	29.659	29.626	29.646	29.957	29	29.282	26	.675	50.9	64.1	58.2	57.7	79.0	9	40.0	21	39.0	68.3	49.3	1,294	1,772	1,717	4,783	27	N.	10
Nov.....	29.787	29.793	29.765	29.782	30.055	29	29.480	24	.575	43.2	57.4	51.1	50.6	75.0	11	30.0	26	45.0	61.7	41.4	1,115	1,417	1,146	3,678	36	S.	24
Dec	29.795	29.812	29.797	29.801	30.110	31	29.393	3	.717	38.4	49.7	45.2	44.4	71.0	14	25.0	13	46.0	54.7	35.9	1,187	1,290	1,298	3,775	32	S.	25
Sums..	356.174	356.238	355.689	356.032	......	.....	......	.....	......	625.7	825.9	763.4	738.2	.....	.....	.....	.....	....	881.8	593.9	15,857	18,346	20,745	54,948	....	....	....
																					Averages.						
Means.	29.681	29.686	29.641	29.669	30.342	*17	29.207	†27	.....	52.1	68.8	63.6	61.5	107.0	‡2, 3	19.0	§19	....	73.5	49.5	1,321.4	1,528.8	1,728.8	....	....	....	....

* February. † March. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	53	1	4	1	17	0	2	12	3	.87	.76	24	3.0	4.1	2.8	3.3	30.6	32.0	34.2	32.3	84.9	63.3	74.6	74.3	18	8	5	4	0	17	0	
Feb	40	5	3	0	13	0	0	18	5	.39	.39	13	1.8	3.0	0.7	1.8	29.7	28.6	32.6	30.3	74.7	43.7	60.1	59.5	22	5	1	1	0	11	0	
Mar	19	2	4	1	42	1	0	12	12	2.60	1.14	27	2.5	3.4	2.5	2.8	41.5	40.7	44.4	42.2	76.4	44.7	58.5	59.9	19	7	5	5	0	0	0	
Apr	27	0	7	2	36	0	2	12	4	1.96	.72	19, 20	3.8	4.2	3.1	3.7	40.5	37.9	40.5	39.6	76.5	43.5	55.1	58.4	13	12	5	9	0	0	0	
May	29	0	9	1	38	0	1	10	5	2.96	1.16	5, 6	3.8	4.1	4.3	4.1	46.2	44.9	48.6	46.6	76.0	45.1	57.8	59.6	16	5	10	12	0	0	5	
June	27	0	10	2	40	0	1	8	2	(*)	(*)	17	0.7	0.6	1.2	0.8	49.7	46.9	47.0	47.9	55.8	24.9	28.6	36.4	26	4	0	0	0	0	21	
July	20	0	4	3	53	0	2	3	8	0	0	......	0.2	0.3	0.4	0.3	51.3	50.4	48.3	50.0	51.7	23.1	24.6	33.1	31	0	0	0	0	0	30	
Aug	27	0	9	0	43	0	0	7	7	(*)	(*)	31	0.2	0.3	0.5	0.3	46.5	45.6	43.6	45.2	52.2	23.4	25.5	33.7	30	1	0	0	0	0	24	
Sept	43	3	4	3	27	2	0	5	3	1.04	1.04	29, 30	0.4	1.6	1.3	1.1	43.3	42.0	46.0	43.8	48.7	25.5	35.9	36.7	25	4	1	2	0	0	14	
Oct	50	4	5	2	13	1	1	11	6	2.68	1.03	1	2.5	3.3	2.1	2.6	*42.2	42.5	42.1	42.3	74.5	49.7	58.6	60.9	21	7	3	6	0	0	0	
Nov	64	2	3	1	9	0	0	4	7	.74	.43	7, 8	1.3	2.8	1.4	1.8	38.3	39.7	41.2	39.7	84.6	54.7	70.2	69.8	23	5	2	2	0	1	0	
Dec	35	0	9	6	23	0	1	15	10	.52	.40	27	3.1	4.8	3.1	3.7	35.9	38.1	38.7	37.6	91.4	66.3	80.3	79.3	17	9	5	3	0	4	0	
Sums	424	17	71	16	354	4	10	117	72	13.76	......	......	23.3	32.5	23.4	26.3	495.7	489.3	507.2	497.5	847.4	507.9	629.8	661.6	261	67	37	44	0	33	94	
	Percentages.																								Percentages.							
Means	39.6	1.6	6.5	1.5	32.3	0.4	0.9	10.7	6.6	......	......	......	1.9	2.7	2.0	2.2	41.3	40.8	42.3	41.5	70.6	42.3	52.5	55.1	71.5	18.4	10.1	12.1	0	9.0	25.8	

* Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, corresponds with 3.59 a. m., 11.59 a. m., and 7.59 p. m., local time.

Correction for instrumental error of barometer used: From 3.59 a. m., January 1, to 7.59 p. m., December 31, inclusive, +0.010 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.400; February, 0.400; March, 0.400; April, 0.390; May, 0.390; June, 0.350; July, 0.340; August, 0.350; September, 0.350; October, 0.360; November, 0.370; December, 0.370.

J. R. WILLIAMS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

RIO GRANDE CITY, TEX.

[Latitu[illegible] longitude, 98° 48′ W. Magnetic variation, 8° 45′ E. Elevation of barometer above sea-level, 230 (B) feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 2 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan																											
Feb																											
Mar														93.0	31	45.0	8, 9	48.0	79.5	62.6							
Apr														101.0	13	52.0	16	49.0	89.6	66.3							
May														105.0	31	59.0	27	46.0	97.4	68.0							
June																			98.2	69.2							
July														104.0	28	62.0	3	42.0	97.2	75.0							
Aug														105.0	27	68.0	31	37.0	101.5	72.9							
Sept														104.0	6	53.0	27	51.0	92.9	66.7							
Oct	29.795	29.727	29.795	29.772	30.081	31	29.529	27	.552	71.4	89.4	76.4	79.1	99.6	2	50.3	30	49.3	90.8	70.9	1,200	2,034	1,864	5,098	(1)		
Nov	29.928	29.870	29.922	29.907	30.353	16	29.491	10	.862	61.5	76.8	66.7	68.3	92.7	5	44.1	17	48.6	78.3	60.6	1,023	1,802	1,624	4,449	22	NW.	12
Dec	29.951	29.913	29.965	29.943	30.462	15	29.644	18	.818	54.9	68.3	60.4	61.2	83.6	23	35.0	16	48.6	70.2	51.6	1,017	1,392	1,495	3,904	17	S., SE.	5
Sums																											
																					Averages.						
Means																											

B.—Elevation determined by barometer.

[1] Self-register unserviceable.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Feb	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
Mar	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	0	0	8	
Apr	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	21	1	8	...	0	0	16	
May	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	16	8	7	...	0	0	29	
June	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
July	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	10	11	10	...	0	0	27	
Aug	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	12	13	6	...	0	0	31	
Sept	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	11	12	7	...	0	0	18	
Oct	5	5	7	61	7	0	0	1	7	.22	.12	18	4.8	6.1	2.0	4.1	67.5	64.8	67.9	66.6	87.9	44.9	75.6	69.5	10	18	8	8	0	0	21	
Nov	5	5	1	27	7	0	0	30	15	1.70	.90	15, 16	3.4	5.0	3.2	3.9	57.0	57.5	58.0	57.5	85.7	54.5	75.4	71.9	17	5	8	5	0	0	8	
Dec	18	9	4	23	7	1	4	21	6	1.07	.67	9, 10	4.1	6.2	4.5	4.9	51.8	58.2	54.1	53.0	91.0	61.6	80.7	77.8	11	10	10	5	0	0	0	
Sums	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	
	Percentages.																								Percentages.							
Means	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	...	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.33 a. m., 1.33 p. m., and 9.33 p. m., local time.

Correction for instrumental error of barometer used: From 5.33 a. m., October 1, to 9.33 p. m., December 31, inclusive, +.002 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.25; February, 0.25; March, 0.24; April, 0.24; May, 0.24; June, 0.23; July, 0.23; August, 0.24; September, 0.24; October, 0.24; November, 0.25; December, 0.25.

L. G. SCHULTZ,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

ROCHESTER, N. Y.

[Latitude, 43° 8′ N.; longitude, 77° 42′ W. Magnetic variation, 5° W. Elevation of barometer above sea-level, 621 feet. Elevation of exposed thermometer above ground, 149 feet. Elevation of rain-gauge above ground, 145 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
	In.	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.448	29.425	29.444	29.439	29.887	4	28.819	20	1.068	18.8	22.5	20.4	20.6	43.5	30	−6.0	23	49.5	27.5	13.5	3,309	3,708	3,284	10,301	56	W.	21
Feb	29.503	29.502	29.501	29.502	30.000	2	28.888	7	1.112	21.0	26.0	23.0	23.3	57.0	16	3.0	24	54.0	30.5	15.6	3,458	3,905	3,827	11,190	48	W.	25
Mar	29.304	29.254	29.287	29.282	29.782	8	28.551	10	1.231	21.1	27.5	23.5	24.0	55.0	18	3.5	8	51.5	33.1	15.9	3,272	3,669	3,597	10,538	43	W.	12
Apr	29.349	29.307	29.333	29.330	29.635	13	28.887	11	.748	37.2	45.7	39.5	40.8	83.5	15	18.0	1	65.5	49.5	33.3	2,353	2,829	2,621	7,803	48	W.	11
May	29.302	29.263	29.270	29.278	29.608	17	28.917	20	.691	47.6	56.7	50.0	51.4	84.5	10	32.5	13	52.0	61.6	43.0	2,988	3,524	3,175	9,687	40	W.	31
June [1]	29.340	29.296	29.310	29.316	29.745	1	28.820	11	.927	60.9	72.2	62.5	65.2	84.0	6	43.5	1	40.5	74.9	55.0	1,159	1,734	1,495	4,388	48	W.	11
July	......	......	......	......	......	....	......	....	....	....	....	....	....	....	....	....	....	....	....	....	......	......	......	......	......	......	......
Aug	......	......	......	......	......	....	......	....	....	....	....	....	....	....	....	....	....	....	....	....	......	......	......	......	......	......	......
Sept	......	......	......	......	......	....	......	....	....	....	....	....	....	....	....	....	....	....	....	....	......	......	......	......	......	......	......
Oct. [2]	29.493	29.461	29.467	29.474	30.048	16	28.600	29	1.448	44.8	51.8	46.5	47.7	79.0	10	27.0	17	52.0	55.5	41.2	1,584	1,967	1,672	5,223	44	W.	30
Nov	29.409	29.372	29.402	29.394	29.846	27	28.754	9	1.092	38.3	44.1	39.3	40.6	69.0	5, 22	16.5	16	52.5	48.4	33.9	3,358	3,870	3,386	10,614	55	S.	26
Dec	29.387	29.352	29.383	29.374	29.939	23	28.850	27	1.089	26.3	30.6	27.7	28.2	55.5	13	−4.5	23	60.0	35.0	21.4	3,009	3,112	3,390	9,511	44	W.	28
Sums	......	......	......	......	......	....	......	....	....	....	....	....	....	....	....	....	....	....	....	....	......	......	......	......	......	......	......
																					Averages.						
Means	......	......	......	......	......	....	......	....	....	....	....	....	....	....	....	....	....	....	....	....	......	......	......	......	......	......	......

[1] Station closed June 15.

[2] Station re-opened October 10.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—									Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	3	3	10	15	9	17	28	8	0	0.94	0.15	8, 9	9.2	8.5	6.1	7.9	15.6	18.4	17.5	17.2	87.5	84.5	88.4	86.8	0	12	19	16	18	31	0	
Feb	0	2	3	8	9	17	27	17	1	2.28	0.55	3, 4	8.2	7.4	6.3	7.3	17.6	19.7	19.9	19.1	86.3	76.9	87.7	83.6	2	10	16	23	19	27	0	
Mar	4	7	4	4	9	17	25	23	0	1.65	0.68	19	6.9	6.0	6.2	6.4	16.4	18.8	18.6	17.9	81.5	71.7	82.5	78.6	5	13	13	14	17	31	0	
Apr	7	13	8	6	6	17	18	15	0	1.61	0.48	5, 6	5.8	5.5	4.0	5.1	30.5	31.4	31.7	31.2	76.9	59.8	74.7	70.5	6	18	6	10	1	12	0	
May	5	11	6	6	8	16	25	16	0	6.53	2.09	21, 22	6.2	6.4	5.5	6.0	40.0	41.4	42.3	41.2	76.5	60.9	77.2	71.5	7	13	11	17	0	0	0	
June ...	1	0	3	1	10	13	11	6	0	1.04	0.50	9, 10	5.7	4.8	4.2	4.9	54.6	53.7	54.3	54.2	80.6	54.7	75.5	70.3	5	8	2	5	0	0	0	Station closed June 15, and re-opened October 10.
July	.....	.....	.....	.....	.....	.....	.....	..	..	.....	.....	.....	....	....	....	....	....	.....	.....	.....	.....	.....	.....	.....	..	..	..	.....	..	..	..	
Aug	.....	.....	.....	.....	.....	.....	.....	..	..	.....	.....	.....	....	....	....	....	....	.....	.....	.....	....	.....	.....	.....	..	..	..	.....	..	..	..	
Sept	.....	.....	.....	.....	.....	.....	.....	..	..	.....	.....	.....	....	....	....	....	....	.....	.....	.....	.....	.....	.....	.....	..	..	..	.....	..	..	..	
Oct	6	15	8	10	6	8	10	3	0	1.36	0.55	29, 30	8.0	7.2	6.4	7.2	40.0	39.8	39.8	39.9	83.4	65.7	78.5	75.9	1	9	12	8	0	2	0	
Nov	2	3	1	6	16	22	21	19	0	2.03	0.63	23	8.3	7.8	7.1	7.7	30.8	32.1	30.5	31.1	74.8	64.5	72.3	70.5	0	14	16	14	2	10	0	
Dec	3	3	2	10	14	27	19	15	0	2.33	0.48	30	7.9	8.5	7.0	7.8	21.7	23.2	22.0	22.3	83.0	74.7	79.4	79.0	1	12	18	20	11	25	0	
Sums ..	....	....	....	....	....	....	....	..	..	.....	.....	.....	....	....	....	....	....	.....	.....	.....	.....	.....	.....	.....	..	..	..	.....	..	..	..	
		Percentages.																							Percentages.							
Means .	....	....	....	....	....	....	....	..	..	.....	.....	.....	....	....	....	....	....	.....	.....	.....	.....	.....	.....	.....	..	..	..	.....	..	..	..	

NOTE—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.57 a. m., 2.57 p. m., and 10.57 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.57 a. m., January 1, to 10.57 p. m., June 15, inclusive, +0.004 inch; from 6.57 a. m., October 10, to 10.57 p. m., November 30, inclusive, +0.004 inch; from 6.57 a. m., December 1, to 6.57 a. m., December 13, inclusive, +0.022 inch; from 10.57 a. m., December 13, to 10.57 p. m., December 31, inclusive, 0.000.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.710; February, 0.710; March 0.700; April, 0.690; May, 0.660; June, 0.650; July, 0.650; August, 0.650; September, 0.650; October, 0.670; November, 0.700; December, 0.710.

E. W. McGANN,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

ROSEBURG, OREG.

[Latitude, 43° 13′ N.; longitude, 123 20′ W. Magnetic variation, 19° 30′ E. Elevation of barometer above sea-level, 511 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 83 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.710	29.684	29.680	29.691	30.052	8	29.153	24	.899	33.6	40.2	38.7	37.5	58.8	30	12.0	20	46.8	44.8	31.1	606	636	877	2,119	20	SW.	25
Feb	29.618	29.625	29.601	29.615	30.038	17	28.908	13	1.130	31.4	41.0	39.1	37.2	68.7	27	9.4	4, 5	59.3	47.5	29.3	441	478	811	1,730	24	S.	12
Mar	29.485	29.474	29.442	29.467	29.82[illegible]	15	28.839	27	.987	41.9	57.4	54.5	51.3	80.0	21	31.7	7	48.3	65.5	39.4	350	534	1,094	1,978	23	SW.	28
Apr	29.488	29.485	29.480	29.484	29.819	22	28.959	19	.860	41.8	54.6	50.0	48.8	70.7	28	34.0	17, 24	36.7	57.6	40.0	587	877	1,738	3,202	24	SW.	11
May	29.486	29.465	29.458	29.470	29.838	19	29.135	12	.703	46.7	64.2	59.4	56.8	83.6	29	36.9	14	46.7	69.0	45.5	332	657	1,406	2,395	20	SW.	13
June	29.549	29.518	29.503	29.523	29.858	5	29.269	10	.589	51.5	72.7	67.6	63.9	86.8	16	42.5	1	44.3	77.9	50.4	469	681	1,840	2,990	21	N.	7
July	29.515	29.489	29.463	29.489	29.746	19	29.219	8	.527	53.7	75.5	71.7	67.0	93.0	7, 9	46.4	29	40.6	82.4	52.1	327	616	1,711	2,654	24	SW.	8
Aug	29.537	29.535	29.510	29.527	29.734	17	29.321	3	.413	53.9	69.0	67.0	63.3	86.4	7	45.2	30	41.2	73.9	52.2	374	563	1,311	2,248	14	N.	15
Sept	29.475	29.457	29.443	29.458	29.663	1	29.112	29	.551	50.5	67.8	62.7	60.3	86.2	21	39.4	1	46.8	73.6	48.6	327	481	950	1,758	14	SW., NW.	4, 18
Oct	29.513	29.525	29.520	29.519	29.838	9	29.054	26	.784	45.6	54.2	49.9	49.9	65.2	10	32.0	20	33.2	58.0	43.6	354	679	966	1,999	14	SW.	27
Nov	29.620	29.630	29.624	29.625	29.885	11	29.036	24	.849	42.1	48.5	45.6	45.4	58.8	12, 27	27.4	4	31.4	51.5	39.8	360	529	600	1,489	16	SW.	24
Dec	29.591	29.606	29.600	29.599	29.964	7	29.229	26	.735	37.4	42.2	40.3	40.0	57.3	26	28.5	8	28.8	45.8	35.1	514	572	638	1,724	17	SW.	25
Sums	354.587	354.493	354.324	354.467	......	--	......	....	......	530.1	687.3	646.5	621.4	....	....	....	.....	.....	749.5	507.1	5,041	7,303	13,942	26,286	....	....	....
																					Averages.						
Means	29.549	29.541	29.527	29.539	30.052	*8	28.839	†27	.....	44.2	57.3	53.9	51.8	93.0	‡7, 9	9.4	§4, 5	...	62.5	42.3	420.1	608.6	1,161.8	....	....	....	....

* January. † March. ‡ July. § February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.											*In.*	*In.*					°	°	°	°												
Jan	5	1	13	8	19	22	9	6	10	2.98	0.69	25	5.5	7.6	5.9	6.3	29.6	31.6	33.2	31.5	85.1	71.7	80.4	79.1	6	9	16	19	2	18	0	
Feb	6	10	5	7	5	4	7	30	10	1.17	0.67	12, 13	4.6	4.8	3.7	4.4	27.0	30.3	32.0	29.8	83.5	66.8	75.0	75.1	12	9	7	7	3	18	0	
Mar	11	12	4	4	6	10	9	19	18	1.73	0.96	25, 26	3.7	4.1	3.2	3.7	37.1	42.9	42.2	40.7	83.4	50.7	64.3	69.1	18	5	8	7	0	1	0	
Apr	13	1	9	7	12	16	11	16	5	2.87	0.57	11, 12	7.9	7.9	6.6	7.5	36.7	37.8	38.2	37.6	82.7	54.7	65.2	67.5	2	12	16	14	0	0	0	
May	23	5	6	0	1	9	5	17	27	2.29	0.91	3, 4	5.2	4.7	4.5	4.8	41.9	43.8	43.4	43.0	83.7	49.8	57.9	63.8	9	15	7	9	0	0	0	
June	30	5	2	0	0	1	2	33	17	0.01	0.01	3	3.4	2.5	1.7	2.5	44.9	47.0	46.0	46.0	78.6	40.9	47.3	55.6	19	8	3	1	0	0	0	
July	31	7	7	2	0	1	4	23	18	0.01	0.01	9	0.1	0.3	1.1	0.5	47.0	48.5	49.5	48.3	78.2	40.1	46.8	55.0	29	2	0	1	0	0	5	
Aug	29	12	5	3	0	0	3	35	6	0.03	0.03	1	2.0	1.8	1.0	1.6	47.5	50.8	50.3	49.5	79.2	53.3	56.5	63.0	23	8	0	1	0	0	0	
Sept	20	25	6	2	4	4	2	20	7	0.62	0.22	29, 30	1.7	2.0	2.1	1.9	45.8	48.5	49.9	48.1	84.4	51.8	64.2	66.8	21	7	2	4	0	0	0	
Oct	13	8	8	8	9	8	10	10	19	2.84	0.78	1	7.0	7.2	5.5	6.6	41.7	44.3	43.3	43.1	86.9	70.2	78.7	78.6	5	9	17	17	0	0	0	
Nov	0	1	13	7	10	15	11	3	30	2.20	1.44	24	6.2	7.9	7.3	7.1	38.4	41.1	40.7	40.1	86.9	76.2	83.4	82.2	2	13	15	15	0	2	0	
Dec	3	4	15	3	13	13	7	9	26	5.73	2.50	24, 25	5.3	6.7	5.9	6.0	34.4	36.5	36.0	35.6	89.2	80.8	85.0	85.0	7	11	13	12	0	10	0	
Sums	184	91	93	51	79	103	80	221	193	22.48	......	......	52.6	57.5	48.5	52.9	472.0	503.1	504.7	493.3	1001.8	716.0	804.7	840.8	153	108	104	107	5	49	5	
	Percentages.																								Percentages.							
Means	16.8	8.3	8.5	4.7	7.2	9.4	7.3	20.2	17.6	......	......	......	4.4	4.8	4.0	4.4	39.3	41.9	42.1	41.1	83.5	59.7	67.1	70.1	41.9	29.6	28.5	29.3	1.4	13.4	1.4	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington tiime, correspond with 3.55 a. m., 11.55 a. m., and 7 55 p. m., local time.
Correction for instrumental error of barometer used: From 3.55 a. m., January 1, to 7.55 p. m., December 31, inclusive, +0.001 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.570; February, 0.570; March, 0.560; April, 0.560; May, 0.550; June, 0.550; July, 0.540; August, 0.540; September, 0.550; October, 0.560; November, 0.570; December, 0.570.

J. J. NANRY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

SACRAMENTO, CAL.

[Latitude, 38° 35′ N.; longitude, 121° 30′ W. Magnetic variation, 17° E. Elevation of barometer above sea-level, 65 feet. Elevation of exposed thermometer above ground, 37 feet. Elevation of rain-gauge above ground, 58 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles*			
Jan.[1]	30.189	30.194	30.177	30.187	30.533	8	29.799	2	.734	37.8	45.0	43.0	41.9	62.2	31	22.0	20	40.2	49.5	34.0	1,269	1,206	1,295	3,770	36	NW.	19
Feb	30.052	30.078	30.043	30.058	30.658	17	29.598	12	1.060	39.7	50.6	47.6	46.0	71.7	26	22.0	3	49.7	55.9	35.9	1,283	1,269	1,265	3,817	23	NW.	2
Mar	29.932	29.954	29.921	29.936	30.165	19	29.545	27	.620	49.5	63.5	57.8	56.9	78.2	16	42.5	23	35.7	69.3	47.1	1,567	1,340	1,781	4,688	26	SE.	27
Apr	29.953	29.979	29.942	29.958	30.348	15	29.605	24	.743	48.9	62.3	56.7	56.0	76.0	28	39.8	13	36.2	66.5	46.6	1,685	1,964	2,284	5,933	34	NW.	23
May	29.890	29.913	29.876	29.893	30.188	19	29.657	5	.531	55.3	69.1	63.4	62.6	98.0	26	42.2	2	55.8	73.7	53.5	1,494	1,669	2,041	5,204	28	NW.	24
June	29.850	29.858	29.812	29.840	30.126	3	29.558	9	.568	61.5	82.6	73.7	72.6	102.5	9, 30	49.8	2	52.7	88.1	60.1	1,897	1,854	2,177	5,928	31	NW.	5
July	29.824	29.848	29.789	29.820	30.035	29	29.573	3	.462	61.9	84.1	73.4	73.1	103.5	2	56.0	29	47.5	90.6	60.7	1,722	1,412	1,950	5,084	17	SW.	4
Aug[2]	29.849	20.883	29.830	29.854	30.024	15	29.697	3	.327	60.6	81.4	72.1	71.4	100.0	19	54.8	16	45.2	88.9	59.2	1,630	1,333	1,634	4,597	18	NW.	18
Sept	29.831	29.855	29.815	29.834	29.978	30	20.645	14	.333	62.2	80.7	71.9	71.6	101.0	22	52.9	12	48.1	87.3	59.6	1,295	1,075	1,287	3,657	16	SW., S.	14, 15
Oct	29.921	29.930	29.899	29.917	30.227	29	29.514	3	.683	50.8	65.3	58.5	58.2	81.0	10	42.2	20	38.8	69.5	48.4	1,125	1,292	1,571	3,988	21	SE.	26
Nov.[1]	30.058	30.066	30.036	30.053	30.326	29	29.852	24	.474	43.6	56.3	51.6	50.5	71.0	1	29.0	26	42.0	62.1	40.1	885	1,009	1,232	3,126	25	NW.	19
Dec	30.092	30.102	30.091	30.095	30.410	8	29.644	3	.766	39.4	48.2	44.9	44.2	67.0	2	24.0	14	43.0	53.3	36.4	911	950	984	2,845	16	W.	27
Sums	359.441	359.660	359.231	359.445	......	...	......	...	.....	611.2	789.1	714.6	765.0	.....	.....	.....	.....	.....	854.7	581.6	16,763	16,373	19,501	52,687	....	....	.....
																					Averages.						
Means	29.953	29.972	29.936	29.954	30.658	*17	29.544	†3	......	50.9	65.8	59.6	58.8	103.5	‡2	22.0	(§)	....	71.2	48.5	1,396.9	1,364.4	1,625.1	......	....	....	.....

[1] One 11 p. m. observation missed.

[2] One 7 a. m. observation missed.

* February.

† October.

‡ July.

§ January 20 and February 3.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	20	2	4	22	14	4	2	19	5	2.23	1.90	1	3.5	2.9	2.2	2.9	34.6	37.1	38.2	36.6	88.5	75.1	84.4	82.7	16	11	3	4	0	11	0	
Feb	21	4	6	11	13	4	2	20	3	1.11	0.98	13, 14	1.5	3.3	0.9	1.	34.8	34.6	36.5	35.3	82.8	55.7	66.4	68.8	19	8	1	3	0	11	0	
Mar	5	1	4	26	37	10	1	9	0	3.70	1.61	26	2.0	3.3	2.1	2.5	45.4	46.6	48.7	46.9	86.0	55.9	72.4	71.4	22	5	4	6	0	0	0	
Apr	8	0	2	14	26	21	7	15	2	0.67	0.32	19, 20	1.4	4.2	2.6	2.7	43.0	42.4	45.9	43.8	81.1	49.6	67.7	66.1	16	13	1	7	0	0	0	
May	5	2	2	17	28	19	1	18	1	2.85	1.15	5, 6	3.8	4.8	2.8	3.8	49.5	51.1	53.4	51.3	81.5	54.9	71.1	69.2	16	8	7	9	0	0	2	
June	8	0	0	15	40	12	1	19	0	0.00	0.00	......	0.5	0.8	0.0	0.4	53.3	58.7	57.3	56.4	75.5	45.2	57.8	59.5	28	2	0	0	0	0	11	
July	0	0	0	17	50	16	7	3	0	0.00	0.00	......	0.2	0.2	0.2	0.2	53.1	58.9	56.9	56.3	73.1	43.8	56.9	57.8	31	0	0	0	0	0	13	
Aug	8	0	0	22	37	22	1	7	0	0.00	0.00	......	0.1	0.2	0.2	0.2	51.1	56.7	55.5	54.4	71.9	44.5	56.9	57.8	29	1	0	0	0	0	11	
Sept	8	0	0	25	30	10	2	16	4	0.90	0.77	29, 30	0.9	1.7	0.8	1.1	52.2	55.8	55.8	54.6	70.8	43.8	58.2	57.6	24	5	1	2	0	0	8	
Oct	18	1	8	16	25	9	3	20	3	0.97	0.80	26, 27	2.2	3.1	2.1	2.5	46.0	49.5	48.5	48.0	84.1	58.6	70.9	71.2	19	9	3	6	0	0	0	
Nov	14	8	7	21	11	10	1	17	5	0.61	0.55	7, 8	1.2	2.1	1.3	1.5	40.7	45.3	44.3	43.4	89.8	67.5	75.8	77.5	23	4	2	3	0	2	0	
Dec	12	4	9	37	11	5	3	10	6	0.44	0.25	21, 22	1.9	4.6	2.3	2.9	37.9	42.6	41.7	40.7	94.4	81.6	89.4	88.5	17	10	4	6	0	3	0	
Sums	102	17	37	243	322	138	31	173	29	13.48	...	......	19.2	31.2	17.5	22.6	541.6	579.8	582.7	567.7	979.5	675.7	827.4	827.6	260	76	26	46	0	27	45	
	Percentages.																								Percentages.							
Means	9.3	1.6	3.4	22.2	29.5	12.6	2.8	15.8	2.7	....	...	....	1.6	2.6	1.5	1.9	45.1	48.3	48.6	47.3	81.6	56.3	69.0	69.0	71.9	20.9	7.2	12.6	.0	7.4	12.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., correspond with 4.02 a. m., 12.02 p. m., and 8.02 p. m., local time.
Correction for instrumental error of barometer used: From 4.02 a. m., January 1, to 8.02 p. m., December 31, inclusive, +0.001 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.080; February, 0.080; March, 0.080; April, 0.080; May, 0.080; June, 0.070; July, 0.070; August, 0.070; September, 0.070; October, 0.080; November, 0.080; December, 0.080.

JAMES A. BARWICK,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SAINT LOUIS, MO.

[Latitude, 38° 38′ N.; longitude, 90° 12′ W. Magnetic variation, 6° 30′ E. Elevation of barometer above sea-level, 583 feet. Elevation of exposed thermometer above ground, 70 feet. Elevation of rain-gauge above ground, 101 feet.]

Month.	Barometer (corrected for the temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.557	29.537	29.559	29.551	30.088	22	28.995	30	1.092	20.5	26.1	23.1	23.2	48.5	26	— 3.7	21	52.2	31.9	15.8	2,738	3,151	2,804	8,783	43	NW.	10
Feb	29.672	29.637	29.660	29.656	30.162	18	29.002	24	1.160	26.9	36.4	30.5	31.3	66.7	15	— 0.5	5	67.2	39.8	22.6	2,322	2,362	2,253	6,937	32	NW.	24
Mar	29.477	29.439	29.459	29.458	30.030	3	28.926	18	1.104	33.3	44.2	37.7	38.4	78.0	18	19.0	7	59.0	47.9	31.3	2,649	3,107	2,774	8,530	35	N.	18
Apr	29.336	29.291	29.314	29.314	29.704	2	28.738	22	0.966	49.0	63.8	54.5	55.8	87.5	13	32.2	1	55.3	67.8	46.8	2,460	3,156	3,087	8,703	39	S.	14
May	29.367	29.329	29.344	29.347	29.713	5	28.964	14	0.749	55.5	69.2	60.6	61.8	90.5	7	37.0	22	53.5	73.2	52.7	2,597	3,554	3,211	9,362	44	S.	19
June	29.366	29.334	29.337	29.346	29.649	1	28.990	10	0.659	66.7	78.8	70.1	71.9	91.0	23–29	52.8	1	38.2	82.2	64.0	1,944	2,656	2,622	7,222	35	W.	21
July	29.456	29.420	29.428	29.435	29.773	18	29.097	12	0.676	70.6	83.5	74.2	76.1	96.5	21–22	59.0	30	37.5	87.2	68.3	1,850	2,502	2,479	6,831	40	{N., NW., NE.}	13
Aug	29.492	29.459	29.465	29.472	29.677	5	29.293	21	0.384	66.5	80.3	71.5	72.8	97.0	22	58.2	24	38.8	84.1	65.2	1,526	1,935	1,903	5,364	26	E.	22
Sept	29.484	29.420	29.448	29.454	29.780	9	29.180	24	0.594	59.0	75.8	65.9	66.9	92.0	2	43.8	9	48.7	78.6	57.4	2,089	2,433	2,679	7,201	32	NW.	20
Oct	29.492	29.462	29.465	29.473	29.879	15	28.880	28	0.999	51.5	59.6	55.4	55.5	86.0	8	34.6	21	51.4	63.2	50.0	2,778	2,709	2,943	8,430	32	W., N.	29, 31
Nov	29.558	29.500	29.516	29.525	30.110	28	28.909	21	1.201	44.9	54.3	49.6	49.6	72.2	4	17.5	16	54.7	59.3	41.6	3,151	3,218	3,090	9,459	53	S	5
Dec	29.511	29.483	29.520	29.505	29.878	14	28.886	26	0.992	36.0	43.4	39.2	39.5	71.5	1	8.5	19	63.0	49.8	31.8	2,808	3,278	3,062	9,148	30	NW.	16
Sums	353.768	353.820	353.515	353.536	.....	...	......	...	......	580.4	715.4	632.3	642.8	....	......	......	....	....	765.0	547.5	28,912	34,061	32,997	95,970	....	....	......
																					Averages.						
Means	29.481	29.443	29.460	29.461	30.162	*18	28.788	†22	......	48.4	59.6	52.7	53.6	97.0	‡22	— 3.7	§21	....	63.8	45.6	2,409.3	2,838.4	2,749.8	......	....	....	......

* February. † April. ‡ August. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan.....	15	5	7	12	6	9	12	27	0	0.94	0.27	15	6.9	6.4	5.7	6.3	16.9	20.4	10.1	18.8	85.6	79.0	84.6	83.1	5	15	11	9	16	30	0	
Feb.....	17	4	10	12	9	5	7	20	0	5.88	1.76	2, 3	6.0	5.6	4.8	5.5	24.2	30.7	27.3	27.4	89.6	80.6	87.9	86.0	9	8	11	10	8	21	0	
Mar	15	13	4	5	11	11	5	29	0	2.29	0.76	5, 6	5.4	6.4	4.5	5.4	30.1	36.4	33.9	33.5	88.5	76.5	86.5	83.8	7	13	11	13	2	18	0	
Apr	13	4	3	29	16	8	7	10	0	3.31	1.61	21, 22	5.0	5.5	3.5	4.7	45.0	49.9	48.5	47.8	86.6	63.4	81.0	77.0	10	12	8	9	0	0	0	
May	18	2	3	12	29	4	8	17	0	2.89	1.17	18, 19	5.8	6.0	3.9	5.2	52.9	58.8	55.8	55.8	91.2	71.2	85.2	82.5	8	13	10	13	0	0	1	Killing frost May 22.
June ...	12	1	4	20	15	4	18	16	0	5.04	1.24	15	5.4	6.3	3.2	5.0	62.7	64.4	64.5	63.9	87.5	62.9	83.2	77.9	7	19	4	13	0	0	2	
July	9	6	3	14	32	18	3	6	2	4.31	1.28	16	4.1	5.0	3.1	4.1	65.6	65.5	66.7	65.9	84.8	56.2	78.9	73.3	10	16	5	10	0	0	13	
Aug	27	15	10	11	16	3	3	4	4	3.34	1.86	14, 15	3.6	4.5	1.9	3.3	62.7	60.7	64.7	62.7	88.1	53.8	79.4	73.8	14	15	2	7	0	0	4	
Sept	15	18	4	8	18	10	6	11	0	0.01	0.01	30	3.0	3.5	2.2	2.9	52.8	53.2	54.7	53.0	80.4	47.7	68.2	65.4	16	12	2	1	0	0	3	
Oct	21	16	10	18	8	4	8	8	0	6.60	2.21	18	7.1	7.1	4.9	6.4	48.1	50.7	49.5	49.4	88.6	74.9	81.9	81.8	4	13	14	16	0	0	0	
Nov	8	3	4	12	32	6	11	14	0	3.71	2.41	21	4.3	4.4	3.5	4.1	36.2	40.0	38.4	38.2	72.1	60.9	66.5	66.5	13	12	5	6	0	6	0	Killing frost Nov. 12
Dec.....	9	5	1	7	21	17	20	13	0	1.78	0.69	13, 14	5.1	5.6	4.6	5.1	29.3	32.9	30.7	31.0	77.3	68.2	72.6	72.7	14	5	12	11	2	15	0	First snow Dec. 16.
Sums..	179	92	63	160	213	99	108	175	6	40.10	....	......	61.7	66.8	45.8	58.0	526.5	563.6	553.8	548.0	1,020.3	795.3	955.9	923.8	117	153	95	118	28	90	23	
	Percentages.																								Percentages.							
Means.	16.4	8.4	5.8	14.6	19.4	9.0	9.9	16.0	0.6	.....	....	......	5.1	5.5	3.8	4.8	43.9	47.0	46.2	45.7	85.0	66.8	79.7	77.0	32.1	41.9	26.0	32.3	7.7	24.7	6.3	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.07 a. m., 2.07 p. m., and 10.07 p. m., local time.

Correction for instrumental error of barometer used: From 6.07 a. m., January 1, to 10.07 p. m., December 31, inclusive, —010 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.660; February, 0.660; March, 0.650; April, 0.630; May, 0.610; June, 0.600; July, 0.600; August, 0.600; September, 0.610; October, 0.620; November, 0.640; December, 0.650.

J. H. WEBER,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SAINT MICHAEL'S, FORT, ALASKA.

[Latitude, 63° 28' N.; longitude, 161° 49' W. Magnetic variation, 25° 17' E. Elevation of barometer above sea-level, 30 feet. Elevation of exposed thermometer above ground, 13 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29. 605	29. 625	29. 598	29. 609	30. 669	30	28. 610	4	2. 059	15. 8	17. 2	17. 8	16. 9	43. 6	19	—20	30	63. 6	22. 8	11. 2	[1]2, 166	[1]2, 531	[1]2, 479	[1]7, 176	55	NE.	15
Feb	30. 335	30. 348	30. 328	30. 337	31. 288	10	29. 726	20	1. 562	9. 4	10. 5	11. 1	10. 3	41. 0	5	—16	24, 26	57. 0	17. 2	4. 4	2, 789	2, 633	2, 743	8, 165	64	SW.	9
Mar	29. 812	29. 803	29. 795	29. 803	30. 380	2	29. 335	18	1. 045	13. 9	17. 7	17. 6	16. 4	40. 0	25, 26	—27	9	67. 0	23. 1	10. 1	3, 043	2, 806	2, 669	8, 518	64	SE.	26
Apr	29. 843	29. 837	29. 829	29. 836	30. 250	1	29. 043	9	1. 207	11. 9	13. 4	17. 0	14. 1	37. 0	9	— 8	26	45. 0	20. 4	8. 2	2, 309	2, 563	2, 573	7, 445	31	S.	21
May	29. 731	29. 718	29. 702	29. 717	30. 230	27	29. 237	15	1. 002	33. 4	38. 2	39. 7	37. 1	51. 7	31	22	1	29. 7	43. 2	30. 9	1, 916	1, 570	1, 705	5, 191	30	E.	3
June	29. 861	29. 861	29. 843	29. 855	30. 252	10	29. 397	13	. 855	43. 8	46. 8	49. 0	46. 5	62. 5	21	35	5	27. 5	52. 1	40. 5	1, 991	2, 745	2, 530	7, 266	32	S.	27, 30
July	29. 816	29. 808	29. 794	29. 806	30. 139	25	29. 468	9	. 671	48. 9	52. 0	54. 0	51. 6	65. 5	27	36	12	29. 5	57. 3	45. 2	2, 457	2, 593	2, 426	7, 476	43	S.	1
Aug	29. 804	29. 810	29. 794	29. 803	30. 191	23	29. 354	16	. 837	47. 2	50. 6	51. 5	49. 8	63. 6	5	37	14	26. 6	54. 3	45. 2	2, 945	3, 114	3, 380	9, 430	44	SW.	20
Sept	29. 545	29. 552	29. 538	29. 545	29. 995	4	28. 953	11	1. 042	43. 1	45. 0	45. 4	44. 5	66. 5	3	30	21, 28	36. 5	48. 8	41. 1	3, 112	3, 316	3, 260	9, 726	48	SE.	22
Oct	29. 573	29. 582	29. 558	29. 571	30. 119	7, 8	28. 929	20	1. 190	32. 2	34. 0	34. 1	33. 4	45. 1	1	12	29	33. 1	37. 6	29. 4	3, 278	[2]3, 528	[2]3, 944	[4]10, 750	64	SW.	23
Nov	29. 792	29. 818	29. 799	29. 803	30. 875	23	28. 690	14	2. 185	12. 6	13. 7	12. 3	12. 9	35. 5	1, 13	—17	29	52. 5	19. 1	5. 0	4, 711	4, 431	4, 319	13, 4[illegible]	64	SE.	11
Dec	29. 750	29. 758	29. 765	29. 758	30. 504	13	29. 258	19	1. 246	3. 7	5. 5	5. 0	4. 7	39. 5	18	—26	10	65. 5	10. 6	—2. 5	[3]2, 310	[3]2, 407	[3]2, 329	8, 490	44	S.	20, 21
Sums	357. 467	357. 520	357. 343	357. 443	......	...	......	...	......	315. 9	344. 6	354. 5	338. 2	...	...	......	......	.....	406. 5	268. 7	28, 551	29, 271	25, 605	[5]103, 103	....	....	......
																					Averages.						
Means	29. 789	29. 793	29. 779	29. 787	31. 288	*10	28. 610	†4	......	26. 3	28. 7	29. 5	28. 2	66. 5	‡3	—27. 0	§9	.....	33. 9	22. 4	2, 379. 2	2, 439. 2	2, 133. 8	....	....	....	......

[1] 28 days only. [2] 30 days only. [3] 26 days only. [4] 30½ days only. [5] 356½ days only. * February. † January. ‡ September. § March.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	0.1 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	4	41	13	10	15	4	2	0	4	2.63	.79	17	9.2	8.2	9.0	8.8	15.5	16.0	17.1	16.2	99.1	95.4	97.3	97.3	0	4	27	13	27	30	0	
Feb	16	11	8	13	18	5	2	5	6	.34	.27	14	5.8	5.2	6.2	5.7	9.1	9.9	10.7	9.9	99.0	97.2	98.1	98.1	8	8	12	4	22	27	0	
Mar	8	22	9	19	14	13	1	4	3	.96	.48	5, 6	7.2	7.0	7.3	7.2	13.7	16.9	16.5	15.7	99.2	97.0	95.8	97.3	2	12	17	8	10	29	0	
Apr	36	19	4	5	4	5	2	11	4	.50	.21	23	7.3	6.5	6.5	6.8	11.8	12.8	16.2	13.6	99.5	97.4	96.4	97.8	4	12	14	9	27	30	0	
May	22	30	5	7	6	9	1	6	7	.63	.16	14	7.2	6.1	6.1	6.5	32.3	34.9	36.1	34.4	92.4	91.1	87.7	90.4	4	13	14	8	0	17	0	
June ...	19	14	3	1	12	15	11	13	2	1.84	.65	30	8.3	6.6	7.3	7.4	40.2	41.8	43.2	41.7	87.4	83.2	80.7	83.8	2	11	17	10	0	0	0	
July ...	10	12	7	4	25	19	3	6	7	3.13	.50	20, 28	8.1	7.6	7.7	7.8	46.6	47.6	48.3	47.5	92.1	85.4	81.1	86.2	0	11	20	15	0	0	0	
Aug ...	4	4	11	15	30	16	7	6	0	3.80	.76	19, 20	8.6	8.6	7.8	8.3	44.9	45.6	46.6	45.7	92.0	83.7	83.6	86.4	0	10	21	20	0	0	0	
Sept	17	13	7	12	19	9	2	7	4	4.48	1.07	16, 17	9.0	9.0	9.1	9.0	39.9	40.5	41.3	40.6	88.2	84.5	86.0	86.2	0	3	27	21	0	2	0	First frost on Sept. 20.
Oct	4	3	15	19	26	9	15	1	1	1.66	.25	31	7.9	7.9	8.3	8.0	29.7	30.3	31.0	30.3	90.5	86.3	88.4	88.4	1	9	21	23	4	15	0	
Nov	7	15	7	8	16	13	16	4	4	1.06	.47	13	6.2	6.7	6.4	6.4	11.1	11.6	10.0	10.9	93.7	91.4	91.4	92.2	7	6	17	19	25	29	0	
Dec	9	24	16	5	10	11	1	0	17	.70	.34	10, 20	5.5	6.7	4.8	5.7	1.6	3.7	3.2	2.8	91.1	92.5	92.0	91.9	8	10	13	6	27	31	0	
Sums ..	156	208	105	118	195	128	63	63	59	21.73	....	.....	90.3	86.1	86.5	87.6	296.4	311.6	320.2	309.3	1,124.2	1,085.1	1,078.5	1,096.0	36	109	220	156	151	210	0	
	Percentages.																								Percentages.							
Means.	14.3	19.0	9.6	10.8	17.8	11.7	5.7	5.7	5.4	.....	....	.....	7.5	7.2	7.2	7.3	24.7	26.0	26.7	25.8	93.7	90.4	89.9	91.3	9.9	29.9	60.2	42.7	41.4	57.5	0.0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 1.21 a. m., 9.21 a. m., and 5.21 p. m., local time.

Correction for instrumental error of barometer used: From 1.21 a. m., January 1, to 5.21 p. m., December 31, inclusive, +.027 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.04; February, 0.04; March, 0.04; April, 0.03; May, 0.03; June, 0.03; July, 0.06; August, 0.03; September, 0.03; October, 0.03; November, 0.03; December, 0.04.

FRED. H. CLARKE,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SAINT PAUL, MINN.

[Latitude, 44° 58′ N.; longitude, 93° 3′ W. Magnetic variation, 10° 45′ E. Elevation of barometer above sea-level, 1,801 feet. Elevation of exposed thermometer above ground, 44 feet. Elevation of rain-gauge above ground, 61 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.208	29.198	29.219	29.208	29.657	23	28.529	30	1.128	−2.5	5.1	0.8	1.1	29.5	12	−31.0	22	60.5	11.1	−9.5	1,414	1,910	1,427	4,751	41	SE.	12
Feb	29.331	29.307	29.307	29.315	29.765	17	28.690	16	1.075	5.9	18.0	12.4	12.1	46.5	27	−26.0	1	72.5	23.1	1.0	1,175	1,761	1,684	4,620	38	S.	10
Mar	29.173	29.157	29.163	29.164	29.692	7	28.394	17	1.298	19.1	29.9	24.3	24.4	52.0	17	−8.0	7	60.0	35.7	14.4	1,070	1,892	1,559	4,521	28	N.	18
Apr	29.050	29.007	29.016	29.024	29.425	24	28.459	14	.966	38.9	51.0	45.4	45.1	73.5	27	19.0	1	54.5	56.4	36.0	2,037	2,852	2,699	7,588	53	SE.	13
May.....	29.061	29.041	29.053	29.052	29.364	11	28.356	18	1.008	45.7	59.2	51.6	52.2	75.0	16	34.0	12	41.0	63.1	42.8	1,777	2,634	2,342	6,753	37	S.	18
June	29.042	29.032	29.037	29.037	29.234	4	28.677	11	.557	59.4	71.6	64.4	65.1	91.5	28	46.5	2, 3, 10	45.0	76.8	56.5	948	1,954	1,763	4,665	40	S.	1
July	29.085	29.089	29.068	29.081	29.398	18	28.692	11	.706	63.8	77.2	69.7	70.2	100.0	1	52.0	18	48.0	81.5	62.0	1,373	1,962	1,871	5,206	40	NE.	21
Aug.....	29.181	29.159	29.162	29.167	29.443	5	28.597	21	.846	59.5	74.2	65.7	66.5	88.5	21	46.5	23	41.5	77.7	58.4	1,151	2,133	1,840	5,124	32	S.	31
Sept	29.224	29.187	29.200	29.204	29.577	8	28.840	24	.737	49.8	64.0	55.6	56.5	84.0	1	30.5	30	53.5	67.5	47.9	1,350	2,111	1,839	5,300	28	S.	10
Oct......	29.232	29.193	29.213	29.213	29.728	20	28.564	29	1.164	40.5	50.5	44.7	45.2	75.0	8	25.0	20	50.0	53.6	38.9	1,233	2,096	1,690	5,019	37	SE.	17
Nov	29.134	29.087	29.106	29.109	29.803	28	28.564	25	1.239	27.8	38.8	31.8	32.8	60.0	2	0.5	26	59.5	43.7	22.5	1,451	1,979	1,665	5,095	32	NW.	13
Dec	29.179	29.166	29.183	29.176	29.643	22	28.412	17	1.231	15.8	24.0	19.6	19.8	53.0	12	−15.8	19	68.8	28.4	11.0	1,257	1,445	1,181	3,883	25	NW.	13
Sums..	349.900	349.623	349.727	349.750	......	....	......	....	......	423.7	563.5	485.9	491.0	......	...	......	......	....	618.6	381.9	16,236	24,729	21,560	62,525	....	....	.....
																					Averages.						
Means.	29.158	29.135	29.144	29.146	29.803	*28	28.356	†18	......	35.3	47.0	40.5	40.9	100.0	‡1	−31.0	§22	...	51.6	31.8	1,353.0	2,060.8	1,796.7	......	....	....	.....

*November. †May. ‡July. §January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	6	1	2	17	7	14	15	19	12	.64	0.21	30	4.4	5.2	4.2	4.6	−6.5	−3.8	−3.3	−4.5	83.6	67.0	82.7	77.8	11	12	8	12	31	31	0	
Feb	6	0	5	14	6	20	12	13	8	.44	0.23	23, 24	3.9	4.5	4.1	4.2	1.8	8.3	7.1	5.7	83.1	65.4	79.1	75.9	10	14	4	6	22	28	0	
Mar . ..	12	2	0	8	7	9	15	27	13	.06	0.03	25	6.1	5.2	2.7	4.7	12.0	15.0	15.6	14.2	73.5	53.3	68.7	65.2	10	16	5	4	6	31	0	
Apr	16	1	11	16	13	4	10	14	5	4.92	1.94	21, 22	6.7	5.8	4.5	5.7	28.8	30.6	32.2	30.5	67.7	49.6	61.0	59.4	7	13	10	11	0	8	0	
May	17	8	5	8	12	4	8	17	14	2.12	0.82	17	6.8	6.6	4.1	5.8	39.0	37.5	40.1	38.9	77.9	47.1	65.9	63.6	6	14	11	14	0	0	0	
June.....	15	4	5	2	14	7	7	19	17	7.04	1.86	1, 2	5.5	6.2	3.3	5.0	53.4	55.8	56.4	55.2	81.1	59.8	76.0	72.3	9	15	6	16	0	0	1	
July	8	4	4	7	16	15	11	18	10	4.33	2.32	6	5.0	6.3	3.1	4.8	58.0	57.8	61.3	59.0	81.7	52.7	75.1	69.8	10	16	5	10	0	0	3	
Aug	8	4	4	7	28	9	8	11	14	1.22	0.68	11	5.1	5.6	2.9	4.5	54.6	55.6	56.1	55.4	84.1	53.8	71.8	69.9	10	14	7	4	0	0	0	
Sept	6	2	3	20	20	10	5	21	3	2.23	0.90	20, 21	5.0	5.3	3.9	4.7	44.7	45.5	47.6	45.9	81.8	53.6	74.0	70.4	13	9	8	11	0	1	0	Sept. 8, first frost; killing frost, 28.
Oct	5	2	2	26	17	5	12	10	14	1.10	0.34	5	7.1	7.3	5.6	6.7	34.5	35.3	34.7	34.8	70.2	58.4	69.1	68.9	5	9	17	10	0	5	0	
Nov	2	1	0	7	24	5	12	21	18	1.01	0.55	5	5.0	6.5	5.1	5.5	18.3	23.9	22.3	21.5	69.3	57.1	67.9	64.8	6	15	9	5	4	23	0	
Dec......	8	3	1	6	13	9	7	27	19	1.59	0.84	6, 7	4.3	6.1	3.6	4.7	7.1	14.2	10.1	10.5	68.6	68.0	67.9	68.2	11	14	6	12	19	29	0	
Sums ..	109	32	42	138	177	111	122	217	147	26.70	....	......	64.9	70.6	47.1	60.9	345.7	375.7	380.2	367.1	932.6	685.8	860.1	826.2	108	161	96	114	82	156	4	
	Percentages.																								Percentages.							
Means.	10.0	2.9	3.9	12.6	16.2	10.1	11.1	19.8	13.4	....	....	......	5.4	5.9	3.9	5.1	28.8	31.3	31.7	30.6	77.7	57.2	71.7	68.9	29.6	44.1	26.3	31.2	22.5	42.7	1.1	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.56 a. m., 1.56 p. m., and 9.56 p. m., local time.
Correction for instrumental error of barometer used: From 5.56 a. m., January 1, to 9.56 p. m., December 31, inclusive, +.017 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.940; February, 0.930; March, 0.910; April 0.880; May, 0.840; June, 0.840; July, 0.830; August, 0.830; September, 0.850; October, 0.870; November, 0.910 December, 0.950.

P. F. LYONS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

SAINT VINCENT, MINN.

[Latitude, 48° 56′ N.; longitude, 97° 14′ W. Magnetic variation, 13° 5′ E. Elevation of barometer above sea-level, 804 feet. Elevation of exposed thermometer above ground, 8 feet. Elevation of rain-gauge above ground, 14 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.256	29.245	29.261	29.254	29.694	18	28.430	9	1.264	—17.5	— 8.5	—14.1	—13.4	22	9	—44	20	66	— 4.1	—23.9	2,231	2,284	2,379	[1]6,894	40	NW.	9
Feb	29.801	29.285	29.282	29.289	20.888	2	28.682	10	1.206	— 7.8	4.9	— 2.2	— 1.7	35	27	—38	2	73	8.4	—14.4	1,551	1,699	1,902	[2]5,152	34	N., S.	16, 23
Mar	29.242	29.246	29.231	29.240	29.794	4	28.267	17	1.527	1.7	15.5	9.0	8.7	42	13	—31	7	73	21.3	— 4.2	1,905	2,760	2,680	7,405	40	N.	9
Apr	29.092	29.082	29.090	29.088	29.608	24	28.586	8	1.022	27.8	40.9	33.4	34.0	67	27	— 4	1	71	44.7	25.3	1,356	2,115	1,867	5,338	45	NW.	15
May	29.124	29.099	29.097	29.107	29.463	2	28.526	18	.937	39.1	53.3	44.9	45.8	74	16	26	11	48	57.6	35.8	1,714	2,669	2,474	6,857	31	NW.	19
June	29.020	29.003	29.008	29.010	29.341	2	28.633	11	.708	52.8	70.4	58.5	60.6	93	27	29	2	64	73.0	47.7	1,451	2,091	1,882	5,424	24	NW.	12, 18
July	29.065	29.050	29.051	29.035	29.369	18	28.578	14	.791	54.2	71.8	60.0	62.0	93	1	40	4, 8	53	74.6	50.2	1,039	1,748	1,556	4,343	21	NW.	26
Aug	29.141	29.122	29.127	29.130	29.472	5	28.384	19	1.088	52.2	70.4	58.4	60.3	82	8 17 24	39	5	43	72.4	50.1	1,135	1,704	1,457	4,296	25	NW.	19
Sept	29.198	29.176	29.187	29.187	29.589	8	28.721	12	.868	42.2	62.2	47.8	50.7	89	12	17	30	72	65.1	40.2	1,458	2,052	1,834	5,344	25	N.	21
Oct	29.181	29.165	29.195	29.180	29.744	19, 20	28.424	18	1.320	32.1	43.6	36.0	37.2	69	7	11	13	58	45.7	29.4	738	1,412	1,374	3,524	19	SE., W.	16 18 30
Nov	29.092	29.069	29.087	29.083	29.759	28	28.502	25	1.257	14.4	24.0	17.2	18.5	57	2	—22	28	79	28.6	8.6	1,829	2,410	2,201	6,440	39	NW.	25
Dec	29.211	29.197	29.235	29.214	29.821	31	28.657	17	1.174	— 2.4	5.8	— 0.2	1.1	42	12	—40	19	82	11.3	— 9.2	2,417	2,627	2,702	7,746	38	NW.	7
Sums..	349.923	349.739	349.851	349.837	......	.....	.....	..	.....	288.8	454.3	348.7	363.8	....	......	....	..	....	498.6	235.6	18,884	25,571	24,308	68,763	...	....	....
																					Averages.						
Means.	29.160	29.115	29.154	29.153	29.888	*2	28.267	†17	.....	24.1	37.9	29.1	30.4	93.0	(‡)	—44	§20	....	[illegible].6	19.6	1,573.7	2,130.9	2,025.7	......	...	....	....

[1] 30 days. [2] 27¾ days. * February. † March. ‡ June 27, July 1. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	12	2	1	8	9	19	1	37	4	.33	.06	2, 4, 5, 6, 23, 24	3.7	5.2	3.5	4.1	—18.6	—10.9	—15.5	—15.0	95.0	89.7	94.0	92.9	11	16	4	10	31	31	0	
Feb	10	0	0	4	11	12	3	33	11	.24	.12	14, 15	2.8	5.0	2.3	3.4	—11.2	1.0	— 5.4	— 5.2	85.1	83.8	86.2	85.0	13	11	4	5	26	28	0	
Mar	23	4	0	4	8	15	2	35	2	.11	.10	5	4.2	4.8	3.5	4.2	— 1.8	11.1	5.3	4.9	85.0	82.2	84.7	84.0	12	13	6	2	26	31	0	
Apr	10	14	5	10	4	13	1	21	12	.73	.45	13, 14	5.4	5.2	2.3	4.3	24.0	28.6	27.8	26.8	85.9	66.9	80.5	77.8	12	13	5	7	1	22	0	
May	8	19	1	11	11	10	0	33	0	2.13	.90	18	5.5	6.9	2.6	5.0	34.2	34.9	35.5	34.9	82.8	54.0	70.7	69.2	7	19	5	7	0	11	0	
June	11	2	0	15	17	19	4	22	0	1.03	.33	10	3.7	4.8	3.5	4.0	49.2	50.7	51.0	50.3	88.0	51.7	76.5	72.1	11	16	3	8	0	1	2	
July	5	7	1	7	7	20	3	34	9	2.16	.72	19	3.9	5.0	3.3	4.1	51.1	53.8	53.5	52.8	89.4	55.7	79.9	75.0	11	17	3	10	0	0	1	
Aug	7	7	3	17	10	8	2	29	10	5.16	2.34	18, 19	3.9	5.0	3.2	4.0	50.2	57.6	54.7	54.2	92.9	64.9	87.5	81.8	11	15	5	11	0	0	0	
Sept	11	5	0	9	17	11	3	29	5	1.57	.96	20, 21	3.9	3.8	2.4	3.4	40.0	48.3	43.2	43.8	91.8	62.1	84.6	79.5	15	14	1	4	0	4	0	
Oct	4	4	0	26	16	5	1	28	9	3.90	1.34	10	6.1	7.3	6.2	6.5	29.7	35.6	31.8	32.4	90.3	74.8	84.6	83.2	6	8	17	10	0	17	0	
Nov	7	3	2	7	14	17	4	32	4	.26	.08	19	4.6	6.2	4.1	5.0	10.0	15.2	11.8	12.3	81.9	69.8	79.1	76.9	8	18	4	7	16	30	0	
Dec	16	1	3	5	24	5	2	37	0	.26	.14	6	2.8	4.9	3.5	3.7	— 4.9	1.0	— 3.8	— 2.4	89.7	81.2	87.5	86.1	13	15	3	4	24	31	0	
Sums	124	68	16	123	148	154	26	370	66	17.88	...	....	50.5	64.1	40.4	51.7	251.9	326.9	290.4	289.8	1,057.8	836.8	995.8	963.5	130	175	60	85	124	206	8	
	Percentages.																								Percentages.							
Means	11.3	6.2	1.5	11.2	13.5	14.1	2.4	33.8	6.0	.....	....	....	4.2	5.3	3.4	4.3	21.0	27.2	24.2	24.1	88.2	69.7	83.0	80.3	35.6	47.9	16.4	23.3	34.0	56.4	.8	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.40 a. m., 1.40 p. m., and 9.40 p. m., local time.

Correction for instrumental error of barometer used: From 5.40 a. m., January 1, to 9.40 p. m., December 31, inclusive, +0.001 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.980; February, 0.970; March, 0.940; April, 0.910; May, 0.860; June, 0.850; July, 0.840; August, 0.850; September, 0.870; October, 0.900; November, 0.930; December, 0.990.

C. B. DILLEY,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SALT LAKE CITY, UTAH.

[Latitude, 40° 46′ N.; longitude, 111° 54′ W. Magnetic variation, 17° E. Elevation of barometer above sea-level, 4,348 feet. Elevation of exposed thermometer above ground, 52 feet. Elevation of rain-gauge above ground, 78 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	25.733	25.715	25.717	25.722	26.177	8	25.226	17	0.951	21.2	29.3	24.1	24.9	47.0	25	—20.0	20	67.0	32.0	16.8	612	788	933	2,333	28	NW.	7, 17
Feb	25.714	25.719	25.739	25.724	26.274	17	25.105	14	1.169	19.9	29.8	23.0	24.2	50.0	14	Zero.	5	50.0	32.4	15.8	607	839	1,144	2,590	37	SE.	14
Mar	25.638	25.636	25.617	25.630	26.021	2	25.228	29	0.793	40.4	54.0	46.5	47.0	66.0	26, 27	30.0	1, 19	36.0	56.2	37.7	803	1,292	2,041	4,136	28	NW.	18
Apr ...	25.511	25.505	25.502	25.506	26.010	14	24.979	20	1.031	39.6	52.2	45.5	45.8	72.0	30	28.0	13	44.0	55.2	36.0	953	1,785	2,176	4,914	34	SE.	24
May	25.594	25.598	25.571	25.588	25.961	20	25.241	17	0.720	50.4	64.1	56.6	57.0	83.0	31	33.0	2	50.0	67.7	45.7	667	1,124	1,559	3,350	32	(?)	12
June	25.622	25.623	25.600	25.615	25.872	6	25.309	10	0.563	62.7	78.8	69.9	70.5	100.0	29	47.0	6	53.0	82.3	57.8	1,108	1,175	1,885	4,168	28	NW.	14
July	25.666	25.671	25.634	25.657	25.804	24	25.489	12	0.315	68.1	84.0	75.5	75.9	96.0	1	55.0	6	41.0	87.3	65.4	846	685	1,693	3,224	30	NE.	9
Aug.....	25.604	25.697	25.669	25.687	25.864	19	25.466	12	0.398	68.8	84.1	76.2	76.4	94.0	15	51.5	20	42.5	86.7	66.8	934	764	1,614	3,312	24	N.	30
Sept	25.700	25.692	25.674	25.689	25.963	20	25.405	30	0.558	62.0	77.1	68.8	69.3	89.0	3	46.5	28	42.5	79.3	60.1	1,057	1,028	1,708	3,793	36	NW.	7
Oct	25.606	25.603	25.609	25.606	25.923	31	25.186	27	0.737	41.3	51.9	45.2	46.1	66.0	6	27.6	24	38.4	54.3	38.7	976	1,176	1,594	3,746	26	W.	28
Nov	25.717	25.709	25.716	25.714	26.186	29	25.141	24	1.045	34.6	44.6	37.7	39.0	64.2	2	17.3	26	46.9	47.1	31.3	816	991	1,359	3,166	32	NE.	24
Dec	25.736	25.742	25.748	25.742	26.220	31	25.299	28	0.921	29.4	37.4	32.0	32.9	53.0	27	5.4	31	47.6	39.5	25.4	908	899	1,177	2,984	26	S.	25
Sums...	307.931	307.910	307.796	307.880	......	...	......	...	......	538.4	687.3	601.0	609.0	.....	.....	......	.....	....	720.0	497.5	10,287	12,546	18,883	41,716	....	....	....
																					Averages.						
Means.	25.661	25.659	25.650	25.657	26.274	*17	24.979	†20	......	44.9	57.3	50.1	50.8	100.0	‡29	—20.0	§20	....	60.0	41.5	857.3	1,045.5	1,573.6	......	....	....	....

* February. † April. ‡ June. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	4	4	1	16	3	5	9	11	40	1. 47	0. 42	29, 30	5. 4	7. 5	4. 9	5. 9	9. 2	15. 8	10. 2	11. 7	59. 5	56. 9	54. 4	56. 9	6	15	10	9	13	27	0	
Feb	1	3	1	6	0	2	1	25	45	0. 72	0. 37	1, 7	3. 1	4. 4	2. 7	3. 4	8. 4	14. 6	9. 4	10. 8	60. 5	52. 6	53. 9	55. 7	14	10	4	4	13	27	0	
Mar	7	6	3	10	1	5	7	25	29	1. 75	0. 86	29	3. 0	4. 4	3. 5	3. 5	24. 6	29. 1	25. 3	26. 3	53. 1	39. 4	44. 1	45. 5	16	8	7	5	0	3	0	
Apr	4	4	5	19	3	0	2	28	25	2. 92	0. 75	22	6. 5	7. 8	5. 5	6. 6	26. 8	31. 9	29. 8	29. 5	60. 5	48. 4	55. 3	54. 7	3	15	12	12	0	5	0	
May[1]	3	3	2	12	2	1	3	22	37	0. 98	0. 77	1, 2	3. 4	6. 3	4. 3	4. 7	29. 2	32. 3	32. 2	31. 2	45. 9	33. 9	42. 1	40. 6	8	17	3	3	0	0	0	
June ...	16	4	1	9	9	2	4	33	12	0. 33	0. 29	14, 15	2. 9	3. 3	2. 6	2. 9	38. 6	36. 6	36. 6	37. 3	39. 6	24. 0	31. 6	31. 7	19	8	3	2	0	0	9	
July	25	6	5	11	2	2	1	16	25	0. 10	0. 05	28	2. 2	3. 3	3. 6	3. 0	41. 8	43. 3	41. 1	42. 1	38. 6	25. 7	30. 8	31. 7	18	11	2	3	0	0	8	
Aug	7	11	4	14	5	3	4	9	36	0. 62	0. 35	31	3. 1	3. 2	3. 2	3. 2	45. 0	46. 7	45. 0	45. 6	43. 1	28. 5	34. 6	35. 4	18	10	3	5	0	0	7	
Sept	5	6	8	15	5	4	1	17	29	0. 13	0. 11	1	2. 0	3. 5	2. 5	2. 7	38. 9	41. 7	38. 9	39. 8	42. 9	28. 7	34. 2	35. 3	17	12	1	2	0	0	0	
Oct	10	5	7	23	5	3	3	22	15	2. 24	0. 60	25, 26	5. 2	6. 7	4. 0	5. 3	29. 3	34. 1	30. 7	31. 4	62. 4	52. 5	57. 4	57. 4	8	13	10	13	0	2	0	
Nov	1	6	8	16	2	2	7	24	24	1. 78	0. 62	4	4. 4	5. 8	3. 9	4. 7	21. 6	27. 1	23. 8	24. 2	58. 3	50. 6	57. 3	55. 4	13	8	9	6	0	13	0	First frost of season Nov. 6.
Dec	6	0	7	10	6	1	7	20	36	1. 20	0. 61	22	5. 2	5. 9	4. 1	5. 1	17. 9	22. 4	19. 2	19. 8	61. 3	54. 5	58. 3	58. 0	10	13	8	7	2	25	0	
Sums..	89	58	52	161	43	30	49	252	353	14. 24	..	......	46. 4	62. 1	44. 8	51. 0	331. 3	375. 6	342. 2	349. 7	625. 7	495. 7	554. 0	558. 3	150	140	72	71	28	102	24	
	Percentages.																								Percentages.							
Means	8. 2	5. 3	4. 8	14. 8	4. 0	2. 8	4. 5	23. 2	32. 5	.....	.....	......	3. 9	5. 2	3. 7	4. 3	27. 6	31. 3	28. 5	29. 1	52. 1	41. 3	46. 2	46. 5	41. 4	38. 7	19. 9	20. 0	7. 7	28. 0	6. 6	

[1] Three 7 a. m., three 3 p. m., two 11 p. m. observations missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.40 a. m., 12.40 p. m., and 8.40 p. m., local time.
Correction for instrumental error of barometer used: From 4.40 a. m., January 1, to 8.40 p. m., December 31, inclusive, +0.012 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 4.570; February, 4.560; March, 4.520; April, 4.370; May, 4.320; June, 4.220; July, 4.180; August, 4.190; September, 4.250; October, 4.400; November, 4.570; December, 4.540.

JOHN CRAIG,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

SAN DIEGO, CAL.

[Latitude, 32° 43′ N.; longitude, 117° 10′ W. Magnetic variation, 14° 30′ E. Elevation of barometer above sea-level, 67 feet. Elevation of exposed thermometer above ground, 19 feet. Elevation of rain-gauge above ground, 30 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.			Monthly mean.	Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.			Total.	Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.		Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.		Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.058	30.054	30.062	30.058	30.351	21	29.627	2	.724	47.9	60.7	51.6	53.4	76.0	23	32.4	21	43.6	02.7	44.4	1,070	1,246	1,841	4,157	24	SE.	2
Feb.[1]	30.014	30.027	30.025	30.022	30.458	17	29.770	1	.688	48.0	60.6	53.0	53.9	82.6	27	35.8	17	46.8	62.5	45.9	1,239	1,377	2,083	4,699	27	NE.	18
Mar	29.972	29.987	29.986	29.982	30.122	19, 20	29.841	29	.281	54.5	61.3	56.4	57.4	71.2	1	48.0	25	23.2	62.6	52.9	949	1,275	2,064	4,288	19	NW.	19
Apr.[2]	29.931	29.957	29.950	29.946	30.247	14	29.707	23	.540	52.8	63.7	56.1	57.4	84.8	16	42.1	14	42.7	64.9	49.9	1,320	1,963	2,515	5,798	32	W.	12
May	29.902	29.927	29.926	29.918	30.033	18	29.765	21	.268	55.8	66.0	60.0	60.6	89.0	20	45.4	2	43.6	68.0	54.3	1,011	1,675	2,400	5,086	21	S.	6
June	29.842	29.868	29.853	29.854	30.030	2	29.705	26	.325	62.2	72.4	65.2	66.6	84.3	27	56.2	4	28.1	74.2	60.9	918	1,577	2,302	4,792	19	S., NW.	1, 5
July	29.879	29.900	29.885	29.888	30.004	18	29.779	3	.225	65.2	74.0	66.9	68.7	80.0	3	59.0	30	21.0	75.5	64.0	900	1,671	2,402	4,973	20	NW.	23
Aug	29.876	29.897	29.891	29.888	29.972	15	29.803	2	.169	65.0	74.5	67.3	68.9	84.0	29	59.9	23	24.1	75.9	63.5	680	1,399	2,029	4,108	18	NW.	5, 6
Sept	29.829	29.837	29.839	29.835	29.989	5	29.609	22	.330	64.9	75.9	68.3	69.7	101.0	22	59.0	9, 26	42.0	78.2	62.9	711	1,372	2,022	4,105	23	NW.	6
Oct	29.905	29.907	29.916	29.909	30.083	8	29.636	2	.447	57.1	67.6	60.3	61.7	80.5	23	47.8	8	32.7	69.0	54.7	1,004	1,494	2,093	4,591	25	NW.	23
Nov	29.968	29.962	29.978	29.969	30.116	12	29.842	19	.274	52.8	66.4	56.9	58.7	82.2	12	43.0	21	39.2	67.7	50.2	857	1,053	1,616	3,526	19	NE.	12
Dec	29.998	29.990	30.011	30.000	30.253	24	29.742	4	.511	52.0	64.5	56.1	57.5	78.2	15	42.0	25 30 31	36.2	65.7	49.0	1,054	1,253	1,727	4,034	28	NE.	15
Sums ...	359.174	359.313	359.322	359.269	......	.....	......	...	......	677.7	807.6	718.1	734.5	.....	...	....	.....	...	826.9	652.6	11,708	17,355	25,094	54,157	....	....	....
																						Averages.					
Means ..	29.931	29.943	29.944	29.939	30.458	*17	29.609	†22	......	56.5	67.8	59.8	61.2	101.0	†22	32.4	‡21	....	68.9	54.4	975.7	1,446.2	2,091.2	......	....	....	....

[1] One 7 a. m. observation missed.

[2] Two 7 a. m. observations missed.

* February.

† September.

‡ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent.).										
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	12	15	16	5	4	9	16	14	2	1.09	.98	2	3.4	5.1	3.2	3.9	34.7	39.5	39.7	38.0	64.2	48.5	66.7	59.8	12	13	6	4	0	0	0	First frost Jan. 7.
Feb.[1] ..	11	12	6	6	5	6	16	21	1	.95	.43	14	3.9	5.6	3.1	4.2	37.0	38.4	40.4	38.6	69.0	49.7	66.0	61.6	9	15	3	8	0	0	0	Slight earthquake Feb. 6, 4.30 p. m.; last frost Feb. 16.
Mar ...	9	2	2	3	10	11	28	25	3	.41	.19	27, 28	7.6	6.5	6.6	6.9	49.9	50.3	50.2	50.1	84.5	68.0	79.8	77.4	8	15	13	7	0	0	0	
Apr.[2] ..	8	5	5	1	10	17	23	19	0	.31	.18	20	4.9	2.3	3.7	3.6	44.9	47.0	46.7	46.2	77.5	56.2	71.6	68.4	10	14	4	4	0	0	0	
May ...	7	5	3	3	6	14	35	20	0	1.14	.69	12	4.6	3.2	3.0	3.6	49.1	49.9	50.0	49.7	78.6	57.9	70.8	69.1	14	12	5	6	0	0	0	
June ...	9	3	0	2	7	19	24	26	0	.08	.08	12	4.8	1.6	3.6	3.3	57.6	58.4	58.9	58.3	85.3	61.9	80.1	75.8	13	14	3	1	0	0	0	
July ...	8	5	0	0	4	23	24	29	0	.00	.00	0	7.2	1.3	3.5	4.0	59.7	60.1	59.9	59.9	82.8	62.1	78.5	74.5	8	19	4	0	0	0	0	
Aug ...	9	1	0	1	6	20	35	21	0	.00	.00	0	2.0	1.1	1.5	1.5	60.7	60.5	61.3	60.8	85.8	62.3	81.2	76.4	23	8	0	0	0	0	0	
Sept ...	5	10	4	2	3	12	22	32	0	.00	.00	0	4.6	.5	1.9	2.3	56.8	58.8	61.1	58.9	79.8	58.5	79.3	72.5	15	15	0	0	0	0	3	
Oct ...	15	6	4	1	1	8	27	28	3	2.01	1.82	27	4.8	3.6	3.1	3.8	50.0	51.8	52.4	51.4	77.5	57.9	75.8	70.4	12	16	3	4	0	0	0	
Nov .	10	21	3	3	3	8	15	27	0	.20	.20	8, 9	2.2	2.1	2.3	2.2	42.4	45.7	47.1	45.1	71.1	50.9	72.3	64.8	19	9	2	2	0	0	0	
Dec ...	10	31	10	5	4	4	12	16	1	1.82	.63	3, 4	3.0	3.1	2.1	2.7	41.8	44.3	44.7	43.6	71.9	52.5	69.7	64.7	21	8	2	7	0	0	0	First frost Dec. 7.
Sums .	113	116	53	32	63	151	277	278	10	8.01	....	......	53.0	36.0	37.6	42.0	584.6	604.7	612.4	600.6	928.0	686.4	891.8	835.4	159	158	45	43	0	0	3	
	Percentages.																								Percentages.							
Means	10.3	10.6	4.8	2.9	5.8	13.8	25.3	25.4	0.9	....	....	......	4.4	3.0	3.1	3.5	48.7	50.4	51.0	50.0	77.3	57.2	74.3	69.6	43.8	43.8	12.4	11.8	0	0	0.8	

[1] One 7 a. m. observation missed.

[2] Two 7 a. m. observations missed.

NOTE.—7 a. m., 3 p. m., 11 p. m., Washington time, correspond with 4.20 a. m., 12.20 p. m., and 8.20 p. m., local time.
Correction for instrumental error of barometer used: From 4.20 a. m., January 1, to 8.20 p. m., December 31, inclusive, —0.020 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.07; February, 0.07; March, 0.07; April, 0.07; May, 0.07; June, 0.07; July, 0.07; August, 0.07; September, 0.07; October, 0.07; November, 0.07; December, 0.07.

F. R. DAY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SANDUSKY, OHIO.

[Latitude, 41° 25′ N.; longitude, 82° 40′ W. Magnetic variation, 45′ E. Elevation of barometer above sea-level, 639 feet. Elevation of exposed thermometer above ground, 58 feet. Elevation of rain-gauge above ground, 64 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	8 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	8 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 8 p. m.	8 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.442	29.408	29.420	29.423	29.834	23	28.813	20	1.021	20.2	26.2	22.2	22.9	49.0	30	−11.0	22	60.0	30.1	16.0	3,459	3,263	3,315	10,037	43	NW.	21
Feb	29.541	29.510	29.509	29.520	29.948	18	29.031	14	.917	25.8	31.2	28.8	28.6	70.0	16	4.0	1	66.0	36.5	21.0	3,050	3,312	3,323	9,685	46	W.	25
Mar.[1]	29.320	29.287	29.308	29.305	29.787	5	28.704	10	1.083	28.1	34.4	31.1	31.2	69.0	18	10.0	20	59.0	39.3	24.4	3,619	4,076	4,129	11,824	48	NW.	7
Apr	......	......	......	......	......	...	......	...	......	......	......	......	......	....	...	......	...	....	....	...	......	......	......	......	....	....	....
May	......	......	......	......	......	...	......	...	......	......	......	......	......	....	...	......	...	....	....	...	......	......	......	......	....	....	....
June	......	......	......	......	......	...	......	...	......	......	......	......	......	....	...	......	...	....	....	...	......	......	......	......	....	....	....
July[2]	29.391	29.370	29.371	29.377	29.502	20	29.165	24	.837	68.5	77.0	71.4	72.3	91.0	22	57.0	30	34.0	....	....	960	1,155	949	3,064	35	NW.	21
Aug......	29.410	29.381	29.388	29.393	29.601	7	29.129	2	.472	65.4	74.6	68.2	69.4	91.8	22	55.3	30	36.5	77.1	62.8	2,559	2,607	2,431	7,597	36	N.	8
Sept......	29.423	29.380	29.396	29.400	29.770	10	28.940	24	.830	57.6	65.2	60.8	61.2	83.5	16	45.0	10, 26	38.5	69.2	55.8	2,863	2,873	2,869	8,605	44	W.	24
Oct......	29.445	29.422	29.443	29.437	29.941	16	28.677	29	1.264	49.6	55.4	52.4	52.5	85.0	9	38.0	16	47.0	59.5	47.3	3,249	3,758	3,253	10,260	36	NW.	31
Nov	29.422	29.400	29.419	29.414	29.943	16	28.858	9	1.085	41.5	47.2	43.5	44.1	69.5	5	15.2	16	54.3	52.5	37.2	3,790	4,014	3,584	11,388	55	NW.	11
Dec	29.386	29.367	29.401	29.385	29.796	22	28.879	27	.917	31.8	35.2	33.5	33.3	57.0	8, 13	14.0	22	43.0	39.8	27.5	3,009	3,374	3,236	9,619	56	NW.	18
Sums...	......	......	......	......	......	...	......	...	......	......	......	......	......	....	...	......	...	....	....	...	......	......	......	......	....	....	....
																					Averages.						
Means..	......	......	......	......	......	...	......	...	......	......	......	......	......	....	...	......	...	....	....	...	......	......	......	......	....	....	....

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[1] Station closed March 31.

[2] Station re-opened July 20.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 8 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	3	7	8	8	21	21	17	0	1.01	.41	17	7.6	6.7	5.3	6.5	14.8	21.0	16.7	17.5	79.5	80.8	79.4	79.9	6	10	15	18	16	29	0	
Feb	3	3	5	11	3	12	21	26	0	4.12	1.44	3	6.6	7.0	5.2	6.3	20.6	23.3	23.5	22.5	80.0	72.1	80.4	77.5	4	11	13	13	12	26	0	
Mar.[1]	8	19	10	6	4	17	10	19	0	.69	.31	6	5.4	6.6	4.8	5.6	21.2	24.1	23.8	23.0	75.1	66.9	74.2	72.1	7	12	12	8	9	27	0	
Apr	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
May	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
June	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
July[2]	4	0	4	1	2	7	12	6	0	1.73	1.35	23, 24	4.7	6.4	4.3	5.1	59.5	59.9	61.5	60.3	73.0	56.3	71.2	66.8	4	4	4	3	0	0	1	
Aug	13	11	11	10	3	17	20	7	1	4.74	1.41	19	4.6	4.2	3.5	4.1	56.9	57.4	58.3	57.5	74.6	56.6	71.2	67.5	11	15	5	7	0	0	1	
Sept	5	19	14	13	9	15	11	3	1	4.07	1.15	16, 17	5.3	4.8	4.2	4.8	50.4	52.3	52.7	51.8	77.5	64.3	75.3	72.4	11	12	7	12	0	0	0	
Oct	15	13	13	10	7	19	12	4	0	4.88	1.90	2	6.1	7.7	6.4	6.7	43.3	44.3	44.5	44.0	79.3	68.0	76.0	74.4	5	11	15	10	0	0	0	
Nov	2	3	4	2	4	43	13	19	0	3.92	1.41	21, 22	5.7	6.3	5.3	5.8	35.0	34.4	33.8	34.4	77.7	62.3	70.2	70.1	7	13	10	11	2	6	0	
Dec	5	1	0	2	20	33	11	20	1	2.61	.66	23	6.8	6.3	5.4	6.2	24.2	24.3	25.7	24.7	74.8	64.6	72.9	70.8	4	15	12	15	8	19	0	
Sums	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
	Percentages.																								Percentages.							
Means	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	

[1] Station closed March 31.

[2] Station re-opened July 20.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.38 a. m., 2.38 p. m., and 10.38 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.38 a. m., January 1, to 10.38 p. m., March 31, inclusive, +0.006; from 6.38 a. m., July 20, to 10.38 p. m., December 31, inclusive, −0.011.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.720; February, 0.720; March, 0.720; April, 0.700; May, 0.670; June, 0.670; July, 0.660; August, 0.660; September, 0.670; October, 0.690; November, 0.720; December, 0.730.

B. F. HOUGH,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SANDY HOOK, N. J.

[Latitude, 40° 28′ N.; longitude, 74° W.; magnetic variation, 7° W. Elevation of barometer above sea-level, 28 feet. Elevation of exposed thermometer above ground, 16 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.183	30.145	30.170	30.166	30.619	24	29.509	10	1.110	26.9	30.6	27.8	28.4	48.0	31	3.5	23	44.5	33.0	23.0	3,925	4,029	3,778	11,727	40	N., NE.	10
Feb	30.244	30.221	30.250	30.238	30.759	2	29.604	7	1.155	30.7	35.3	31.8	32.6	58.0	4	16.0	2, 27	42.0	38.0	26.6	3,503	3,534	3,194	10,231	43	NW.	12
Mar	29.978	29.897	29.953	29.943	30.466	5, 8	29.244	10	1.222	30.8	38.4	33.9	34.4	62.0	18	10.0	8	52.0	41.3	26.8	4,151	4,315	4,400	12,866	47	W.	12
Apr	30.006	29.964	30.006	29.992	30.453	14	29.600	5	.853	43.4	50.8	45.6	46.6	68.0	5	27.0	1	41.0	53.4	40.3	3,023	3,193	2,993	9,209	36	SW., NW.	5, 25
May	29.964	29.926	29.954	29.948	30.379	1	29.474	22	.905	55.5	63.7	56.5	58.6	84.0	21	40.0	1	44.0	66.2	51.9	3,395	3,156	3,983	10,534	43	W.	29
June	29.978	29.954	29.967	29.966	30.474	2	29.575	11	.899	67.2	76.2	67.6	70.3	90.0	6	50.0	17	40.0	79.1	63.1	2,815	3,093	3,434	9,342	42	NE., E., SW.	11, 27
July	29.971	29.933	29.961	29.955	30.220	21	29.697	15	.523	71.3	80.7	72.5	74.8	95.0	4	59.0	1	36.0	83.3	67.6	3,433	2,939	3,529	9,901	39	NE.	9
Aug	30.036	29.989	30.030	30.018	30.279	15	29.655	2	.624	67.8	78.4	70.4	72.2	91.0	23	61.0	25, 28	30.0	79.5	64.8	3,246	3,138	3,190	9,574	55	E.	2
Sept.....	30.079	30.036	30.058	30.058	30.427	10	29.488	24	.939	60.9	69.7	62.2	64.3	83.0	17	49.0	10	34.0	70.7	58.3	3,865	3,593	3,928	11,386	50	NW.	25
Oct......	30.165	30.116	30.157	30.146	30.636	17	29.381	29	1.255	52.4	59.4	53.8	55.2	77.0	14	39.0	16	38.0	60.3	49.5	4,189	3,725	3,743	11,637	50	W.	30
Nov	30.151	30.104	30.131	30.129	30.591	17	29.691	11	.900	43.4	49.2	45.4	46.0	67.0	22	22.0	16	45.0	52.1	40.0	3,690	3,504	3,821	11,015	68	NW.	12
Dec	30.104	30.068	30.097	30.090	30.675	23	29.401	27	1.274	33.2	37.6	35.4	35.4	57.0	8	5.5	23	51.5	41.0	29.4	3,941	4,001	3,549	11,491	56	NW.	28
Sums..	360.859	360.353	360.734	360.649	......	...	......	...	.....	583.5	670.0	602.9	618.8	......	...	......	......	....	697.9	541.3	43,176	42,230	43,537	128,933	...	....	.....
																					Averages.						
Means.	30.072	30.029	30.061	30.054	30.759	*2	29.244	†10	.....	48.6	55.8	50.2	51.5	95.0	‡4	3.5	§23	....	58.2	45.1	3,598.0	3,518.3	3,628.1	......	...	....	...

* February. † March. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 8 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan......	14	21	6	4	3	16	11	18	0	3.35	0.84	20, 21	6.4	7.4	5.5	6.4	22.2	24.5	23.7	23.5	82.2	78.2	84.5	81.6	7	10	14	17	14	28	0	
Feb	7	4	10	8	3	10	16	26	0	4.22	1.23	6, 7	6.0	6.2	3.9	5.4	25.0	28.9	26.9	26.9	79.3	77.9	82.2	79.8	7	14	7	15	2	23	0	
Mar	8	5	4	10	5	13	18	30	0	1.45	0.60	30	4.8	4.7	2.5	4.0	23.8	29.1	26.7	26.5	75.0	70.2	74.9	73.4	11	15	5	5	3	21	0	
Apr	14	13	7	13	10	10	9	14	0	5.79	1.69	16, 17	6.1	5.5	3.8	5.1	37.0	37.8	37.6	37.5	79.2	65.7	75.4	73.4	6	19	5	13	0	2	0	
May	10	7	11	18	14	10	11	12	0	4.66	3.15	21, 22	3.6	4.9	4.4	4.3	48.9	49.6	49.5	49.3	79.6	62.8	78.9	73.8	11	13	7	11	0	0	0	
June.....	3	3	8	19	18	19	9	11	0	4.94	2.06	18, 19	4.1	4.2	4.3	4.2	61.8	62.7	61.8	62.1	83.1	65.5	82.6	77.1	11	14	5	11	0	0	0	
July	4	7	4	10	15	22	12	19	0	2.30	0.52	8, 9	3.5	5.6	3.1	4.1	63.9	63.0	64.5	63.8	77.3	57.2	76.8	70.4	12	14	5	18	0	0	4	
Aug	5	15	18	9	7	12	26	6	0	3.44	2.19	2	4.0	4.8	2.2	3.7	59.8	60.6	61.1	60.5	76.3	56.3	72.9	68.5	13	14	4	5	0	0	1	
Sept	6	13	14	15	10	10	7	15	0	4.63	1.99	12, 13	5.3	5.3	4.7	5.1	53.4	56.0	55.2	54.9	76.8	63.6	78.6	73.0	8	12	10	9	0	0	0	
Oct	9	19	25	7	14	5	6	7	1	5.20	2.69	23, 24	5.1	4.9	3.1	4.4	45.3	46.1	45.2	45.5	78.0	63.7	74.5	72.1	12	12	7	12	0	0	0	First light frost October 17.
Nov	9	4	7	1	11	15	20	23	0	1.54	0.96	26, 27	4.8	4.9	2.5	4.1	36.4	38.4	38.5	37.8	76.9	68.0	77.5	74.1	12	13	5	9	0	4	0	First heavy frost November 3.
Dec......	10	13	2	1	4	17	20	26	0	2.57	0.72	24	5.3	5.7	5.3	5.4	26.4	28.0	28.6	27.7	76.0	68.9	76.3	73.7	7	13	11	13	6	19	0	
Sums ..	99	124	111	115	114	159	165	207	1	44.09	....	......	59.0	64.1	45.3	56.2	503.9	524.8	519.8	516.0	939.7	798.0	935.1	890.9	117	163	85	133	25	97	5	
	Percentages.																								Percentages.							
Means .	9.0	11.8	10.1	10.5	10.5	14.5	15.1	18.9	0.1	.....	....	......	4.9	5.3	3.8	4.7	42.0	43.7	43.3	43.0	78.3	66.5	77.9	74.2	32.1	44.7	23.3	36.4	6.8	26.6	1.4	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7.12 a. m., 3.12 p. m., and 11.12 p. m., local time.

Correction for instrumental error of barometer used: From 7.12 a. m., January 1, to 11.12 December 31, inclusive, +0.012 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.0[illegible]; February, 0.030; March, 0.030; April, 0.030; May, 0.030; June, 0,030; July, 0.030; August, 0.030; September, 0.030; October, 0.030; November, 0.030; December, 0.030.

V. P. CHAPPEL,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SANFORD, FLA.

[Latitude, 28° 49′ N.; longitude, 81° 22′ W. Magnetic variation, 3° E. Elevation of barometer above sea-level, 50 (B) feet. Elevation of exposed thermometer above ground, 37 feet. Elevation of rain-gauge above ground, 47 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...
Feb	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...
Mar.[1]	29.943	29.874	29.956	29.924	30.100	28	29.686	26	.414	58.1	74.7	63.8	65.4	86.0	31	48.0	28	38.0	......	......	228	374	320	922	24	SW.	31
Apr	29.969	29.921	29.975	29.955	30.196	3	29.643	23	.553	67.4	79.4	68.6	71.8	90.3	23	53.4	17	36.9	81.8	63.8	1,078	1,970	1,861	4,900	27	NW.	24
May	29.996	29.943	29.980	29.973	30.154	25	29.546	21	.608	70.8	81.5	69.9	74.1	93.0	14	51.0	23	42.0	84.0	65.1	815	1,598	1,692	4,105	25	SW.	1
June	30.004	29.963	29.999	29.989	30.126	5	29.838	26	.288	80.0	85.4	76.1	80.5	98.0	21	71.0	3, 5	27.0	90.4	73.4	727	1,454	1,304	3,485	22	SW.	28
July	30.054	30.003	30.047	30.035	30.218	22	29.888	13	.325	81.0	91.0	78.6	83.5	99.4	9	70.0	4	29.4	94.2	75.1	748	1,365	1,370	3,483	24	NW., NE.	2, 19
Aug	29.976	29.931	29.979	29.962	30.138	14	29.765	29	.373	78.2	87.2	77.3	80.9	96.9	3	69.0	30	27.9	91.0	74.2	653	1,413	1,575	3,641	27	NE.	17
Sept	29.953	29.906	29.949	29.936	30.130	27	29.727	21	.403	73.7	83.3	75.4	77.5	91.0	13	66.5	11	24.5	86.0	71.5	1,028	1,780	1,777	4,585	28	NE.	9
Oct	29.990	29.943	29.986	29.973	30.136	6	29.774	12	.362	71.7	80.6	73.6	75.3	91.8	7	62.0	11	29.8	82.2	69.7	1,183	1,968	1,879	5,030	24	NE.	16 17 18
Nov	30.085	30.041	30.080	30.069	30.268	16	29.897	25	.371	63.6	73.0	65.4	67.3	82.3	22	50.5	3	31.8	75.0	61.2	1,634	2,260	2,197	6,091	30	NE.	28
Dec	30.122	30.064	30.107	30.098	30.231	20	29.910	14	.321	55.4	71.7	60.5	62.5	80.5	24	36.0	16	44.5	73.6	58.8	971	1,398	1,317	3,686	24	NW.	15
Sums	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...
																					Averages.						
Means	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	...

B.—Elevation determined by barometer.

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[1] Six days only.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	
Feb	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	
Mar.[1]	1	1	0	0	6	5	1	3	1	0.50	0.50	31	4.7	4.0	3.7	4.1	54.5	56.2	56.7	55.8	88.2	53.3	79.0	73.5	3	1	2	1	0	0	0	
Apr	3	19	3	14	17	17	8	9	0	8.44	3.01	1	5.1	6.9	3.1	5.0	63.5	61.5	63.1	62.7	87.7	56.4	83.1	75.7	6	16	8	10	0	0	1	
May	6	24	3	13	9	18	10	5	5	2.41	1.85	1	5.0	5.8	3.2	4.7	64.8	60.5	62.9	62.7	81.8	50.3	78.6	70.2	9	15	7	8	0	0	2	
June .. .	0	16	7	14	13	20	11	1	8	8.57	2.32	15, 16	5.6	8.2	5.9	6.6	74.2	71.8	72.2	72.7	82.9	65.1	88.0	78.7	2	18	10	22	0	0	16	
July	2	9	6	17	14	22	3	9	11	3.14	2.15	18, 19	2.7	6.6	2.9	4.1	75.1	71.4	72.5	73.0	82.7	53.5	82.0	72.7	8	20	3	10	0	0	29	
Aug	3	23	4	24	6	12	4	7	10	6.74	1.79	25	3.1	7.6	3.6	4.8	74.8	69.3	72.2	72.1	89.7	57.1	84.6	77.1	4	24	3	18	0	0	18	
Sept	7	39	7	9	2	7	5	8	6	3.43	0.68	13	5.2	6.9	4.3	5.5	69.9	68.6	70.2	69.6	88.3	62.5	84.4	78.4	7	14	9	15	0	0	8	
Oct	4	53	4	6	2	10	3	8	3	8.38	1.56	18	5.2	6.8	5.1	5.7	69.0	68.1	69.2	68.8	91.4	67.5	86.7	81.9	8	13	10	14	0	0	8	
Nov	12	38	7	10	0	2	1	16	4	0.35	0.16	13, 14	3.6	5.7	3.0	4.1	59.3	60.1	59.8	59.7	86.2	65.1	83.0	78.1	12	12	6	7	0	0	0	
Dec	7	20	4	7	6	23	2	12	12	0.15	0.07	8	1.7	4.5	1.7	2.6	51.9	55.2	55.6	54.2	88.5	57.3	84.4	76.7	18	11	2	8	0	0	0	
Sums ..	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	
	Percentages.																								Percentages.							
Means .	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	......	

[1] Six days only.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.43 a. m., 2.43 p. m., and 10.43 p. m., local time.

Correction for instrumental error of barometer used: From 6.43 a. m., March 26, to 10.43 p. m., December 31, inclusive, +0.014 inch.

The barometric obsererervations may be reduced to sea-level by adding the following constants for the various months: March, 0.050; April, 0.050; May, 0.050; June, 0.050; July, 0.050; August, 0.050; September, 0.050; October, 0.050; November, 0.050; December, 0.050.

JNO. B. MARBURY,
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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

SAN FRANCISCO, CAL.

[Latitude, 37° 48′ N.; longitude, 122° 26′ W. Magnetic variation, 16° 45′ E. Elevation of barometer above sea-level, 60 feet. Elevation of exposed thermometer above ground, 45 feet. Elevation of rain-gauge above ground, 75 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan.[1]	30.175	30.194	30.173	30.181	30.500	8	29.677	1	.823	44.2	48.0	47.4	46.5	59.5	31	36.0	20	23.5	51.4	42.6	1,549	1,786	1,972	5,307	33	N.	19
Feb.[2]	30.065	30.090	30.059	30.071	30.607	17	29.599	12	1.008	44.4	50.5	48.7	47.9	70.5	27	35.0	3, 4, 5	35.5	54.3	43.3	1,500	1,611	2,022	5,133	31	W.	1
Mar	29.965	29.997	29.969	29.977	30.223	19	29.569	27	.654	50.3	56.0	52.6	53.0	73.5	2, 3	44.5	8	29.0	58.7	49.3	1,771	1,686	3,098	6,555	32	S.	27
Apr.[3]	29.995	30.026	29.999	30.007	30.347	14, 15	29.644	24	.703	49.2	56.1	51.9	52.4	63.0	2, 15	43.0	12, 13	20.0	58.3	48.0	2,290	2,120	3,858	8,268	32	W.	3
May	29.922	29.956	29.930	29.936	30.227	18	29.662	5	.565	52.6	61.6	56.3	56.8	86.0	25	47.5	2	38.5	64.0	51.9	[4]1,673	[4]1,956	[4]3,462	[5]7,176	34	W.	26
June	29.907	29.940	29.902	29.916	30.175	3	29.701	9	.474	56.4	64.4	58.8	59.9	95.2	6	51.0	2, 21, 23	44.2	67.6	55.2	2,338	2,361	4,459	9,158	33	W.	20
July	29.907	29.942	29.898	29.916	30.097	29	29.696	3	.401	55.9	63.1	57.4	58.8	80.0	1	50.5	19	29.5	64.5	55.0	2,370	2,266	4,522	9,158	32	W.	19
Aug	29.925	29.960	29.921	29.935	30.090	15	29.775	2	.315	54.7	62.8	56.2	57.9	82.0	18	52.0	3, 7, 8	30.0	64.4	53.9	2,347	2,084	4,598	9,029	36	W.	10
Sept	29.879	29.905	29.882	29.889	30.042	6	29.708	18	.334	57.7	67.9	60.8	62.1	91.0	22	53.0	1, 17, 28	38.0	69.9	56.3	1,595	1,565	3,619	6,779	31	W.	5, 24
Oct	29.940	29.961	29.934	29.945	30.216	29	29.603	26	.613	53.6	61.3	56.4	57.1	74.5	11	48.0	27	26.5	62.9	52.9	1,237	1,494	2,934	5,665	28	W., NW.	1, 28
Nov	30.065	30.084	30.060	30.070	30.305	28	29.919	8	.386	50.6	56.1	53.7	53.5	67.0	12	43.5	26	23.5	58.8	49.4	1,236	1,322	1,901	4,459	23	W.	13
Dec	30.080	30.096	30.087	30.088	30.368	31	29.620	3	.748	47.4	52.5	50.7	50.2	62.0	1, 2	39.5	13	22.5	55.5	46.2	1,403	1,636	1,754	4,793	28	NW.	27
Sums	359.825	360.151	359.814	359.931	......	.....	.....	...	.....	617.0	700.3	650.9	656.1	....	....	....	....	....	730.3	604.0	21,309	21,887	38,199	81,480	...	....	......
																					Averages.						
Means	29.985	30.013	29.984	29.994	30.607	*17	29.569	†27	.....	51.4	58.4	54.2	54.7	95.2	‡6	35.0	*3, 4, 5	....	60.9	50.3	1,775.8	1,823.9	3,183.2	....	...	....	......

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[1] Two 7 a. m. observations missed.

[2] One 7 a. m. observation missed.

[3] One 3 p. m observation missed.

[4] 85 miles lost by self-register.

[5] By dial.

* February.

† March.

‡ June.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan.[1]	18	8	9	12	4	5	12	23	0	1.92	1.30	24, 25	4.3	3.9	2.5	3.6	39.6	38.5	40.4	39.5	84.8	71.5	77.9	78.1	12	12	5	5	0	0	0	
Feb.[2]	22	7	4	11	4	10	10	14	1	1.04	0.70	13, 14	3.9	4.4	2.8	3.7	37.4	36.5	38.5	37.5	77.3	59.9	68.9	68.7	13	10	4	8	0	0	0	
Mar	2	4	3	6	5	29	33	8	3	3.01	1.63	26, 27	7.8	5.8	6.7	6.8	47.0	47.4	47.4	47.3	88.5	74.1	83.6	82.1	3	13	15	7	0	0	0	
Apr.[3]	0	1	0	2	5	20	47	10	4	1.51	0.76	19	4.4	5.6	3.9	4.6	44.2	44.0	44.9	44.4	83.5	64.4	77.5	75.1	8	17	4	6	0	0	0	Last light frost April 23.
May	4	1	0	6	6	22	45	5	4	3.52	1.23	4, 5	5.9	5.7	4.8	5.5	48.1	49.1	48.9	48.7	84.9	65.4	77.2	75.8	9	10	12	11	0	0	0	
June	4	0	0	0	1	31	49	4	1	0.01	0.01	1	6.5	2.1	4.3	4.3	51.2	51.9	51.5	51.5	84.5	66.8	78.2	76.5	10	15	5	1	0	0	2	
July ...	0	0	0	0	0	39	54	0	0	0.00	0.00	......	7.4	3.3	4.7	5.1	51.9	52.8	52.4	52.4	86.7	70.3	83.4	80.1	7	17	7	0	0	0	0	
Aug ...	0	0	0	0	3	38	49	2	1	0.00	0.00	......	6.7	2.8	4.8	4.8	52.1	53.2	52.5	52.6	91.3	71.8	87.9	83.7	10	15	6	0	0	0	0	
Sept	4	1	1	2	3	31	35	10	3	0.42	0.42	29, 30	5.4	3.5	2.8	3.9	53.9	53.8	53.4	53.7	87.7	63.8	78.6	76.7	11	14	5	2	0	0	1	
Oct	5	2	0	3	2	28	24	24	5	1.48	1.19	26	2.8	3.5	2.9	3.1	50.3	50.2	50.8	50.4	88.7	68.1	81.8	79.5	17	11	3	5	0	0	0	
Nov	20	8	1	7	10	9	14	18	3	1.60	1.01	7, 8	3.7	4.3	2.5	3.5	47.3	46.6	47.6	47.2	88.8	71.4	80.8	80.3	16	8	6	3	0	0	0	1st light frost Nov. 4.
Dec	22	9	0	18	6	9	9	20	0	0.92	0.28	21	4.3	5.2	1.8	3.8	43.8	44.2	44.7	44.2	87.7	74.0	80.3	80.7	16	10	5	8	0	0	0	1st heavy frost Dec. 18.
Sums ..	101	41	18	67	49	271	381	138	25	15.43	....	......	63.1	50.1	44.5	52.7	566.8	568.2	573.0	569.4	1,034.4	821.5	956.1	937.3	132	152	77	51	0	0	3	
	Percentages.																								Percentages.							
Means .	9.3	3.8	1.6	6.1	4.5	24.8	34.9	12.6	2.3	.....	....	......	5.3	4.2	3.7	4.4	47.2	47.4	47.8	47.5	86.2	68.5	79.7	78.1	36.6	42.1	21.3	14.0	0.0	0.0	0.8	

[1] Two 7 a. m. observations missed.

[2] One 7 a. m. observation missed.

[3] One 3 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 3.58 a. m., 11.58 a. m., and 7.58 p. m., local time.

Correction for instrumental error of barometer used: From 3.58 a. m., January 1, to 7.58 p. m., December 31, inclusive, +0.039 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.070; February, 0.070; March, 0.070; April, 0.070; May, 0.070; June, 0.070; July, 0.070; August, 0.070; September, 0.070; October, 0.070; November, 0.070; December, 0.070,

NELSON GOROM,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SANTE FÉ, N. MEX.

[Latitude, 35° 41′ N.; longitude, 105° 57′ W. Magnetic variation, 13° 15′ E. Elevation of barometer above sea-level, 7,106 feet. Elevation of exposed thermometer above ground, 52 feet. Elevation of rain-gauge above ground, 68 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly range.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	23.160	23.143	23.172	23.158	23.466	23	22.709	19	.757	21.5	31.8	27.0	26.8	53.0	31	—13.0	21	66.0	36.7	15.9	2,106	2,511	2,542	7,159	38	N.	6
Feb	23.192	23.177	23.216	23.195	23.586	27	22.707	15	.879	29.8	42.6	36.0	36.1	61.6	20	6.0	17	55.6	47.5	26.0	1,612	2,161	2,264	6,037	41	SW.	6
Mar	23.192	23.172	23.187	23.184	23.566	3	22.871	24	.695	36.5	51.2	44.0	43.9	66.0	27	23.6	7	42.4	55.9	34.0	1,790	2,275	2,774	6,839	36	E.	2
Apr	23.096	23.077	23.106	23.093	23.531	15	22.592	21	.939	36.3	53.4	45.1	44.9	69.0	19	19.0	15	50.0	58.5	33.4	2,116	3,056	3,538	8,710	42	S., NW.	20, 21
May	23.207	23.188	23.194	23.196	23.471	20	22.827	17	.644	45.7	63.1	55.0	54.6	78.2	29	31.0	17	47.2	69.1	43.4	2,570	3,059	3,733	9,362	38	SW.	17
June[1]	23.248	23.217	23.201	23.222	23.349	2	23.049	8	.300	54.0	72.6	63.5	63.4	85.5	14	38.5	9	47.0	78.6	50.1	840	1,110	1,621	3,571	30	S.	11
July																											
Aug																											
Sept																											
Oct																											
Nov																											
Dec																											
Sums																											
																					Averages.						
Means																											

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[1] Station closed June 15.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 8 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	30	18	3	10	9	11	5	4	3	0.42	0.20	19, 20	3.4	3.8	2.8	3.2	10.3	9.6	11.9	10.6	60.9	39.8	51.5	50.7	16	11	4	8	5	31	0	
Feb	11	12	7	9	20	12	6	7	0	0.96	0.48	13	4.1	4.9	3.3	4.1	17.8	16.9	20.2	18.3	60.9	37.1	52.6	50.2	7	17	4	6	2	20	0	
Mar	15	15	14	8	4	12	16	6	3	0.40	0.14	24	4.1	6.3	2.2	4.2	24.9	22.6	24.0	23.8	64.4	34.1	47.3	48.6	10	16	5	6	0	9	0	
Apr	9	8	9	17	9	12	14	10	2	0.11	0.07	26	3.4	5.1	3.8	4.1	17.8	9.8	14.9	14.2	47.7	21.0	30.7	33.1	12	13	5	2	0	10	0	
May	9	5	17	13	17	12	10	8	2	0.87	0.48	16, 17	3.0	4.7	3.1	3.6	23.0	18.6	20.5	20.7	44.3	20.9	29.8	31.7	17	8	6	4	0	1	0	
June[1]	3	5	5	7	5	11	6	1	2	(*)	(*)	11	0.8	2.8	2.7	2.1	30.5	24.7	25.7	27.0	43.7	18.4	25.5	29.2	10	5	0	0	0	0	0	
July																																
Aug																																
Sept																																
Oct																																
Nov																																
Dec																																
Sums																																
	Percentages.																								Percentages.							
Means																																

[1] Station closed June 15.

[*] Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.04 a. m., 2.04 p. m., and 9.04 p. m., local time.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 7.050; February, 7.080; March, 6.980; April, 6.760; May, 6.610; June, 6.510.

H. U. JONES,
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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

SAVANNAH, GA.

[Latitude, 32° 5′ N.; longitude, 81° 5′ W. Magnetic variation, 2° 15′ E. Elevation of barometer above sea-level, 87 feet. Elevation of exposed thermometer above ground, 40 feet. Elevation of rain-gauge above ground, 56 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.			Monthly mean.	Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.		Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.120	30.075	30.117	30.104	30.611	23	29.479	9	1.132	50.1	59.0	53.4	54.2	74.5	6	27.0	12	47.5	61.4	46.7	1,453	1,663	1,640	4,756	26	W.	9
Feb	30.215	30.166	30.213	30.198	30.494	27	29.965	7	.529	55.1	66.7	58.4	60.1	80.0	18	39.0	20	41.0	68.2	52.2	1,382	1,732	1,589	4,703	26	N.	18
Mar.[1]	30.008	29.932	29.970	29.970	30.380	1	29.560	20	.820	51.2	63.7	56.3	57.1	80.0	30	40.0	9	40.0	66.5	49.3	1,742	2,303	2,085	6,130	28	NW. E.	8 25
Apr.[2]	29.954	29.913	29.940	29.936	30.262	4	29.576	23	.686	63.8	72.8	66.4	67.7	85.0	24	49.0	3	36.0	74.9	60.9	1,709	2,433	2,164	6,306	38	NW.	17
May	29.969	29.913	29.944	29.942	30.164	18	29.458	21	.706	69.3	78.6	70.2	72.7	94.0	15	51.0	23	43.0	80.4	64.6	1,377	2,125	2,061	5,563	36	NE.	1
June	29.973	29.929	29.960	29.954	30.171	4	29.715	26	.456	78.3	86.9	78.4	81.2	97.0	19	65.0	2	32.0	88.4	73.8	1,169	1,937	1,861	4,967	24	NE.	14
July	30.012	29.967	29.997	29.992	30.259	22	29.758	13	.501	81.1	90.2	81.8	84.4	99.5	15 17	72.0	28	27.5	92.1	77.8	1,319	1,776	1,821	4,916	21	NW.	25
Aug	29.969	29.922	29.961	29.951	30.124	14	29.731	29	.393	77.0	86.6	78.7	80.8	95.0	3	65.5	31	29.5	88.0	74.0	1,090	1,557	1,533	4,180	28	E.	29
Sept	29.971	29.922	29.961	29.951	30.176	27	29.731	11	.445	70.4	80.9	73.2	74.8	90.0	30	61.0	10	29.0	82.1	68.1	1,147	1,831	1,656	4,634	30	NW.	10
Oct	30.026	29.978	30.014	30.006	30.283	17	29.778	29	.505	65.2	76.1	68.7	70.0	91.5	3	53.2	31	38.3	77.8	63.4	1,641	2,018	1,752	5,411	24	NE.	17
Nov	30.137	30.081	30.124	30.114	30.480	16	29.859	14	.621	53.3	67.4	58.0	59.6	81.0	11	30.0	17	51.0	68.8	51.0	1,304	1,854	1,565	4,723	19	NW.	12
Dec	30.102	30.046	30.095	30.081	30.259	22	29.730	14	.529	50.8	64.5	55.9	57.1	74.7	9	28.0	16	46.7	65.2	49.2	1,270	1,668	1,378	4,816	20	W.	27
Sums	360.456	359.844	360.296	360.199	......	...	......	...	......	765.6	893.4	799.4	819.7	.....	.....	.....	...	.....	912.8	730.5	16,603	22,897	21,105	60,605	...	....	.....
																					Averages.						
Means	30.038	29.987	30.025	30.017	30.611	*23	29.458	†21	......	63.8	74.4	66.6	68.8	99.5	‡15, 17	27.0	*12	.....	76.1	60.9	1,383.6	1,908.1	1,758.8	......	...	....	.....

[1] One 7 a. m. and one 11 p. m. observation missed.

[2] One 11 p. m. observation missed.

* January.

† May.

‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	13	5	15	7	14	9	10	19	1	7.34	3.48	18	5.7	7.1	5.7	6.2	42.3	46.8	44.6	44.6	75.0	66.4	72.4	71.8	5	15	11	15	0	1	0	
Feb	10	6	19	4	15	8	10	11	1	2.34	1.21	12, 13	3.8	5.9	3.3	4.3	47.5	49.8	49.8	49.0	76.9	59.3	74.7	70.3	13	9	6	8	0	0	0	
Mar.[1]	7	3	6	2	15	19	19	20	0	3.31	1.02	8, 9	5.0	4.3	2.7	4.0	39.3	40.2	43.3	40.9	65.0	45.5	63.8	58.1	13	11	5	8	0	0	0	
Apr.[2]	10	4	15	10	20	11	10	9	0	3.92	2.46	9, 10	5.4	6.4	4.0	5.3	55.8	55.6	57.1	56.2	76.0	57.0	73.5	68.8	7	15	7	9	0	0	0	
May	9	1	6	16	28	11	11	11	0	5.22	3.21	1	3.2	4.0	2.5	3.2	59.1	56.7	60.0	58.6	71.0	50.0	71.5	64.2	14	16	1	6	0	0	1	
June	4	5	8	14	20	18	18	3	0	5.93	1.97	8	4.1	5.0	4.5	4.5	70.6	68.9	71.2	70.2	78.0	57.0	79.6	71.5	9	17	4	13	0	0	11	
July	8	4	13	8	28	13	12	7	0	4.56	1.61	1	3.9	5.2	3.7	4.3	72.2	70.7	73.3	72.1	74.5	54.3	76.0	68.3	10	16	5	10	0	0	17	
Aug	12	10	10	10	19	14	12	5	1	9.28	4.03	7, 8	3.8	4.3	3.2	3.8	70.9	70.0	72.1	71.0	81.6	58.9	81.0	73.8	13	16	2	12	0	0	13	
Sept	26	6	11	18	10	7	2	9	1	2.55	.98	14, 15	4.6	5.5	3.6	4.6	65.3	65.2	67.4	66.0	84.8	60.1	82.8	75.9	12	11	7	6	0	0	0	
Oct	28	19	14	6	4	4	9	7	2	1.41	.65	4	5.4	5.5	4.4	5.1	60.4	60.8	63.1	61.4	85.1	61.1	83.3	76.5	7	16	8	10	0	0	3	
Nov	27	5	12	17	12	4	1	12	0	.58	.50	20	4.3	4.5	3.1	4.0	47.1	47.3	49.0	47.8	79.8	51.5	73.7	68.3	13	12	5	3	0	1	0	
Dec	16	9	11	7	15	11	10	13	1	1.99	1.26	27	3.5	5.1	4.0	4.2	43.8	49.0	47.1	46.6	77.6	59.4	73.2	70.1	14	11	6	5	0	1	0	
Sums	170	77	140	119	200	129	124	126	7	48.43	.....	.....	51.7	62.8	44.7	53.5	674.3	681.0	698.0	684.4	925.3	680.5	905.5	837.1	130	165	67	105	0	3	45	
	Percentages.																								Percentages.							
Means	15.6	7.1	12.9	10.9	18.4	11.8	11.4	11.5	0.6	.....	.....	.....	4.3	5.2	3.7	4.4	56.2	56.8	58.2	57.1	77.1	56.7	75.5	69.8	35.9	45.6	18.5	28.8	0.0	0.8	12.3	

[1] One 7 a. m. and one 11 p. m. observation missed.

[2] One 11 p. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.44 a. m., 2.44 p. m., and 10.44 p. m., local time.
Correction for instrumental error of barometer used: From 6.44 a. m., June 1, to 10.44 p. m., December 31, inclusive, —.009 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.100; February, 0.090; March, 0.090; April, 0.090; May, 0.090; June, 0.090; July, 0.090; August, 0.090; September, 0.090; October, 0.090; November, 0.090; December, 0.100.

H. W. FORD,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

SHAW, FORT, MONT.

[Latitude, 47° 31′ N.; longitude, 111° 48′ W. Magnetic variation, 20° 45′ E. Elevation of barometer above sea-level, 3,550 (B) feet. Elevation of exposed thermometer above ground, 7 feet. Elevation of rain-gauge above ground, 24 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	26.335	26.335	26.322	26.331	26.815	18	25.856	11	.950	10.6	19.7	16.5	15.6	49	9,10,11	—33	19	82	27.9	5.4	2,693	2,647	3,091	8,431	58	SW.	9
Feb	26.435	26.429	26.440	26.435	26.757	1	25.902	14	.855	12.0	23.6	16.0	17.2	58	27	—37	3	95	28.6	6.7	2,199	2,551	2,655	7,405	43	SW.	22
Mar	26.403	26.360	26.409	26.391	26.846	2	25.893	17	.953	24.1	44.1	30.8	33.0	69	22	3	18	66	48.2	20.3	1,638	2,184	2,402	6,224	52	SW.	17
Apr	26.256	26.224	26.246	26.242	26.803	24	25.733	20	1.070	30.2	49.5	39.2	39.6	68	27	4	1	64	52.9	28.7	1,918	2,655	2,984	7,557	52	SW.	8
May	26.341	26.329	26.347	26.339	26.661	29	25.940	17	.721	39.5	55.5	47.3	47.4	73	20	22	3	51	59.9	38.5	1,757	2,176	2,194	6,127	36	SW.	16
June	26.358	26.337	26.329	26.341	26.639	8	26.070	10	.569	49.3	69.4	60.5	59.7	95	27, 29	36	1, 12	59	74.2	47.6	1,505	1,837	2,127	5,469	43	SW.	4
July	26.425	26.407	26.416	26.416	26.652	26	26.109	13	.543	48.7	74.4	63.1	62.1	94	18	38	3, 17, 21	56	79.3	47.2	1,209	1,691	2,001	4,901	42	SW.	2
Aug	26.441	26.408	26.408	26.419	26.603	27	26.129	20	.474	50.3	75.7	64.3	63.4	90	15	33	21	57	79.5	48.7	1,364	1,423	1,902	4,689	37	SW.	16
Sept	26.493	26.463	26.458	26.471	26.994	20	26.195	18	.799	42.3	65.9	53.5	53.9	83	5, 16	27	28	56	69.7	40.8	1,063	1,257	1,325	3,645	23	SW.	14, 18
Oct	26.353	26.346	26.341	26.347	26.761	10	25.795	27	.966	31.8	42.2	35.1	36.4	60	5	5	23	55	44.8	28.5	1,778	2,327	2,032	6,137	32	SW.	28
Nov	26.326	26.298	26.322	26.315	26.913	13	25.871	22	1.042	26.2	36.1	27.6	30.0	60	29	—21	25	81	39.8	18.5	2,369	3,093	2,888	8,350	40	W., SW.	12, 20
Dec	26.387	26.371	26.378	26.379	26.910	14	25.743	25	1.167	24.6	33.2	28.0	28.6	59	16	— 9	29, 30	68	38.8	19.3	2,345	2,334	2,363	7,042	52	SW.	27
Sums..	316.553	316.307	316.416	316.426	......	....	......	....	......	389.6	589.3	481.9	486.9	....	......	....	....	....	643.6	350.2	21,838	26,175	27,964	75,977	..	....	.....
																					Averages.						
Means.	26.379	26.359	26.368	26.369	26.994	*20	25.733	†20	......	32.5	49.1	40.2	40.6	95	‡27, 29	—37	§3	....	53.6	29.2	1,820.0	2,181.2	2,330.3	......	..	....	.....

B.—Elevation determined by barometer. * September. † April ‡ June. § February.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	8	10	7	1	4	36	19	5	8	0.54	0.18	29	4.9	6.8	5.5	5.7	3.6	8.4	6.7	6.2	74.7	63.8	67.2	68.6	5	18	8	9	16	28	0	
Feb	3	7	1	1	0	33	26	6	7	0.31	0.12	5	3.7	4.7	3.0	3.8	3.2	8.9	5.6	5.9	69.0	56.0	64.4	63.1	10	14	4	7	14	22	0	
Mar	12	5	6	4	2	19	28	15	2	1.05	0.31	23 24 25	4.4	5.0	5.2	4.9	15.4	20.5	19.7	18.5	71.0	44.5	65.8	60.4	10	11	10	13	7	26	0	
Apr	1	12	7	5	2	34	25	3	1	0.56	0.20	20	4.9	5.0	3.5	4.5	22.4	26.5	26.8	25.2	72.1	42.3	61.6	58.7	8	14	8	8	1	19	0	
May	6	14	10	4	3	27	22	7	0	2.30	0.82	1	5.6	5.6	6.0	5.7	33.3	33.6	36.0	34.3	78.8	48.7	67.3	64.9	2	19	10	10	0	4	0	
June	4	10	6	4	3	21	32	7	3	2.38	0.65	7, 8	4.1	3.5	3.6	3.7	41.1	43.7	46.1	43.6	74 2	43.2	61.5	59.6	12	14	4	10	0	0	4	
July	5	18	3	7	0	20	39	1	0	0.15	0.07	4	2.8	3.6	3.1	3.2	38.0	38.6	40.7	39.1	66.8	29.6	45.2	47.2	13	18	0	4	0	0	1	
Aug	0	18	13	3	0	19	38	1	1	0.97	0.58	21	1.9	3.1	2.2	2.4	40.0	40.9	42.5	41.1	68.9	32.3	47.4	49.5	23	4	4	4	0	0	0	
Sept	2	15	9	7	1	17	32	5	2	0.79	0.73	1	2.1	2.9	1.8	2.3	35.1	36.8	37.1	36.3	76.6	37.4	55.4	56.5	21	7	2	3	0	8	0	
Oct	6	3	7	1	3	15	43	8	7	2.22	0.49	14, 15	5.1	6.5	5.3	5.6	27.6	29.3	29.2	28.7	84.6	62.8	79.6	75.7	7	15	9	11	0	18	0	
Nov	3	6	8	3	2	24	34	7	3	0.83	0.46	24	5.3	5.0	4.5	4.9	18.1	20.0	16.5	18.2	72.9	56.3	65.8	65.0	7	17	6	9	6	24	0	
Dec	3	9	3	0	0	44	14	3	17	0.54	0.22	25, 26	4.5	6.0	3.9	4.8	15.4	15.6	14.8	15.3	68.5	58.1	60.0	60.5	6	18	7	6	10	22	0	
Sums ..	58	127	80	40	20	309	352	63	46	12.64	....	......	49.3	57.7	47.6	51.5	293.2	322.8	321.7	312.4	878.1	570.0	741.2	729.7	124	169	72	94	54	171	5	
	Percentages.																								Percentages.							
Means .	4.8	11.6	7.3	3.7	1.8	28.2	32.1	6.2	4.2	.....	....	......	4.1	4.8	4.0	4.3	24.4	26.9	26.8	26.0	73.2	47.5	61.8	60.8	34.0	46.3	19.7	25.8	14.8	46.8	1.0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.41 a. m., 12.41 p. m., and 8.41 p. m., local time.

Correction for instrumental error of barometer used: From 4.41 a. m., January 1, to 8.41 p. m., December 31, inclusive, +0.001 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 3.86; February, 3.85; March, 3.80; April, 3.67; May, 3.60; June, 3.57; July, 3.51; August, 3.53; September, 3.61; October, 3.70; November, 3.82; December, 3.83.

A. L. MATHEWS,
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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

SHREVEPORT, LA.

[Latitude, 32° 30′ N.; longitude, 93° 40′ W. Magnetic variation, 8° 30′ E. Elevation of barometer above sea-level, 227 feet. Elevation of exposed thermometer above ground, 33 feet. Elevation of rain-gauge above ground, 44 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°			*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.955	29.935	29.949	29.946	30.507	22	29.629	7	.878	38.7	47.3	43.6	43.2	70.0	27	12.0	21	58.0	51.7	35.8	1,414	1,627	1,493	4,534	21	S.	12
Feb	30.033	30.001	30.028	30.021	30.509	27	29.456	23	1.053	43.8	52.7	47.9	48.1	77.0	15	24.0	4	53.0	57.5	39.6	1,379	1,524	1,506	[1]4,409	22	S., NW.	15, 16
Mar	29.872	29.829	29.835	29.845	30.303	3	29.361	30	.942	49.6	63.5	56.3	56.5	81.0	28	35.0	20	46.0	67.7	47.5	1,248	1,637	1,601	4,486	24	SE.	13
Apr	29.728	29.702	29.707	29.712	30.172	16	29.182	22	.990	59.2	75.1	65.4	66.6	92.0	12	46.0	2	46.0	78.8	57.0	1,289	1,832	1,676	4,797	32	SW.	11
May	29.782	29.758	29.756	29.765	30.033	6	29.499	29	.534	66.1	82.3	71.8	73.4	94.8	29	49.0	22	45.8	85.8	63.9	1,171	1,887	1,670	4,728	25	NW.	20
June ...	29.770	29.743	29.734	29.749	29.943	1	29.462	9	.481	74.0	89.7	79.3	81.0	99.4	22	63.7	8	35.7	93.1	71.7	712	1,154	1,003	2,869	30	W.	10
July ...	29.859	29.822	29.816	29.832	30.061	18	29.633	14	.428	76.7	93.7	81.4	83.9	102.0	31	71.0	26	31.0	97.2	74.1	662	1,287	1,192	3,141	22	E.	25
Aug	29.835	29.790	29.800	29.808	29.966	6	29.648	11	.318	73.1	92.4	79.4	81.6	102.0	15	63.8	31	38.2	95.1	71.1	660	1,147	1,250	3,057	23	NE.	23
Sept	29.839	29.824	29.845	29.853	30.011	6	29.681	13	.330	64.9	86.0	72.7	74.5	99.0	2, 3	48.8	23	50.2	88.6	63.2	689	1,076	1,001	2,766	24	N.	15
Oct	29.837	29.786	29.821	29.815	30.181	31	29.467	28	.714	64.3	79.2	69.2	70.9	95.0	2, 5	42.0	25	53.0	81.4	62.5	1,275	1,621	1,539	4,435	32	NW.	18
Nov	29.975	29.919	29.953	29.949	30.422	16	29.491	21	.932	52.3	64.7	56.7	57.9	83.0	9	31.0	16	52.0	66.8	49.5	973	1,475	1,206	3,654	27	S.	21
Dec	29.966	29.906	29.951	29.941	30.444	15	29.541	26	.903	46.8	58.8	51.4	52.3	75.6	1	29.0	16	46.6	60.6	43.9	1,419	1,559	1,709	4,687	24	N., NW.	14, 27
Sums..	358.501	358.015	358.195	358.236	......	....	......	....	......	709.5	885.4	775.1	789.9	.....	....	......	.....	....	924.3	679.8	12,891	17,826	16,846	47,563	....	....	.....
																					Averages.						
Means.	29.875	29.885	29.850	29.853	30.509	*27	29.182	†22	......	59.1	73.8	64.6	65.8	102.0	(‡)	12.0	§21	....	77.0	56.6	1,074.2	1,485.5	1,403.8	......	....	....	.....

[1] For 27 days.

* February.

† April.

‡ July 21; August 15.

§ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	8 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	16	13	8	10	14	1	2	28	1	3.54	1.06	19, 20	6.4	7.0	4.8	6.1	33.3	34.8	35.2	34.4	82.0	65.4	74.6	74.0	8	10	13	15	1	9	0	
Feb	25	11	9	9	13	2	3	8	4	7.24	1.78	11, 12	6.9	8.1	7.1	7.4	39.0	40.2	40.6	39.9	84.1	68.6	78.1	76.9	6	4	18	15	0	8	0	
Mar	13	13	6	6	24	4	13	13	1	5.85	2.37	24	6.1	5.6	5.0	5.6	42.5	42.7	44.9	43.4	78.1	50.8	67.7	65.5	9	11	11	11	0	0	0	
Apr	18	3	3	13	24	7	13	10	4	4.45	1.09	4	5.2	5.7	2.8	4.6	54.9	55.0	55.1	55.0	86.2	52.8	70.9	70.0	10	13	7	9	0	0	1	
May	4	4	10	19	33	4	2	14	3	1.40	.82	30	6.1	6.5	2.8	5.1	60.5	58.4	61.8	60.2	82.7	46.2	71.3	66.7	8	16	7	5	0	0	9	
June	8	2	9	12	27	11	11	5	5	5.70	2.20	5	4.7	6.6	2.4	4.6	69.6	69.1	70.9	69.9	86.2	52.6	76.2	71.7	11	15	4	8	0	0	20	
July	7	2	3	11	39	17	12	1	1	.22	.18	7	5.1	6.2	1.7	4.3	71.0	67.9	71.3	70.1	82.9	44.1	72.1	66.4	10	19	2	3	0	0	30	
Aug	21	17	6	5	20	2	5	9	8	.72	.42	7	3.5	4.4	1.7	3.2	68.0	64.2	68.1	66.8	84.2	41.3	69.4	65.0	13	17	1	2	0	0	29	
Sept	11	16	3	15	12	4	11	11	7	1.29	1.27	15, 16	4.1	3.6	2.0	3.2	58.5	56.0	60.4	58.3	80.2	38.2	66.5	61.6	15	11	4	3	0	0	15	
Oct	7	16	7	16	29	7	4	6	1	.97	.27	26	6.6	6.4	3.1	5.4	59.8	59.8	61.1	60.2	85.5	54.4	76.3	72.1	9	14	8	8	0	0	10	
Nov	13	18	5	14	29	2	4	3	2	8.66	4.83	10, 11	6.2	5.6	4.3	5.4	45.5	44.6	47.8	46.0	78.2	53.0	73.2	68.1	9	12	9	9	0	1	0	
Dec	22	3	11	14	20	5	5	13	0	3.07	2.01	5, 6	6.8	6.1	5.1	6.0	40.3	40.3	41.5	40.7	78.3	54.8	70.4	67.8	10	7	14	10	0	2	0	
Sums	160	118	80	144	284	66	85	121	87	43.11	....	......	67.7	71.8	42.8	60.9	642.9	633.0	658.7	644.9	988.6	622.2	866.7	825.8	118	149	98	98	1	20	114	
	Percentages.																								Percentages.							
Means	14.6	10.8	7.3	13.2	25.9	6.0	7.8	11.1	3.4	.....	....	....	5.6	6.0	3.6	5.1	53.6	52.8	54.9	53.8	82.4	51.8	72.2	68.8	32.3	40.8	26.8	26.8	0.3	5.5	31.2	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.54 a. m., 1.54 p. m., and 6.54 p. m., local time.
Correction for instrumental error of barometer used: From 5.54 a. m., January 1, to 9.54 p. m., December 31, inclusive, +.025 inch.
The barometric observations may be reduced to sea-level by adding the following constants or the various months: January, 0.25; February, 0.25; March, 0.25; April 0.24; May, 0.24; June, 0.23; July, 0.23; August, 0.23; September, 0.24; October, 0.24; November, 0.25; December, 0.25.

L. A. WELSH,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SITKA, ALASKA.

Latitude, 57° 3′ N.; longitude, 135° 19′ W. Magnetic variation, 28° 54′ E. Elevation of barometer above sea-level, 63 feet. Elevation of exposed thermometer above ground, 12 feet. Elevation of rain-gauge above ground, 34 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.836	29.813	29.821	29.823	30.614	31	29.157	4	1.457	36.5	38.2	37.1	37.3	50.8	23 24 25	19.0	31	31.8	43.0	32.9	1,905	2,157	2,043	6,105	45	E.	7
Feb	30.013	29.985	29.956	29.985	30.691	1	29.258	10	1.433	33.1	37.4	36.2	35.6	49.8	26	8.5	13	41.3	41.6	29.1	1,712	1,599	1,635	4,946	36	SE.	26
Mar	29.863	29.849	29.833	29.848	30.173	17	29.240	6	.933	40.3	44.4	43.3	42.7	55.8	15	29.0	26	26.8	49.0	36.5	2,060	1,942	2,258	6,260	36	SE.	7
Apr	29.647	29.655	29.657	29.653	30.373	23	29.004	10	1.369	40.7	45.7	44.8	43.7	65.7	30	31.5	2	34.2	49.5	37.9	2,014	2,101	2,502	6,617	27	E.	14
May	29.836	29.850	29.846	29.844	30.387	28	29.190	15	1.197	44.7	49.7	49.2	47.9	65.2	1	34.0	16	31.2	54.8	42.2	1,935	1,900	2,293	6,128	24	E.	18
June	29.872	29.892	29.890	29.885	30.214	10	29.272	23	.942	47.0	52.9	51.2	50.4	62.1	18	38.0	1, 6	24.1	56.2	45.5	1,651	1,664	2,237	5,552	23	SW.	23
July	29.996	30.001	30.004	30.000	30.435	2	29.621	16	.814	49.7	54.1	52.8	52.2	67.5	7	43.7	25	23.8	57.9	48.1	1,870	1,781	2,152	5,803	32	SE.	29
Aug	29.951	29.944	29.935	29.943	30.210	8	29.663	23	.547	50.4	55.6	54.7	53.6	64.0	21	42.5	26	21.5	59.3	48.8	1,127	1,228	1,644	3,999	28	SE.	12
Sept	29.779	29.776	29.760	29.772	30.393	22	29.122	16	1.271	50.0	55.5	54.1	53.2	69.4	27	40.0	23	29.4	58.9	48.5	1,740	1,861	2,054	5,655	43	SE.	15
Oct	29,840	29.834	29.847	29.840	30.283	13	28.846	26	1.437	43.8	47.3	45.4	45.5	59.8	1	26.0	31	33.8	50.6	41.0	1,593	1,776	1,968	5,337	40	S.	21
Nov	29.796	29.766	29.752	29.771	30.467	12	28.757	29	1.710	32.7	34.4	33.2	33.4	52.8	14	5.0	26	47.8	38.6	27.3	2,173	2,115	2,735	7,023	51	W.	20
Dec	29.610	29.583	29.587	29.593	30.450	13	28.856	10	1.594	36.0	37.1	36.1	36.4	52.8	16	11.8	29	41.0	41.6	30.5	2,944	2,929	3,232	9,105	56	SE.	10
Sums..	358.039	357.948	357.888	357.957	......	....	......	....	......	504.9	552.8	538.1	531.9	....	....	....	..	....	601.0	468.3	22,724	23,053	26,753	72,530	....	....	....
																					Averages.						
Means	29.837	29.829	29.824	29.830	30.691	*1	28.757	‡29	......	42.1	46.0	44.8	44.3	69.4	†27	5.0	‡26	....	50.1	39.0	1,893.7	1,921.1	2,237.8	......	....	....	....

* February. † September. ‡ November.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	3	17	49	11	1	1	0	6	5	4.69	1.12	7, 8	6.9	7.7	6.7	7.1	29.5	30.6	29.7	29.9	76.1	74.2	74.6	75.0	3	11	17	19	1	10	0	
Feb	0	29	34	10	1	2	1	5	2	6.92	2.18	24, 25	5.9	5.8	5.2	5.6	24.7	28.3	27.5	26.8	71.4	70.1	71.5	71.0	10	6	12	14	3	14	0	
Mar	0	15	36	8	5	8	2	16	3	16.00	3.69	15, 16	7.4	7.0	6.1	6.8	32.2	33.2	33.5	33.0	73.3	67.6	69.4	70.1	7	5	19	20	0	2	0	
Apr	1	6	39	11	2	10	10	7	4	4.78	2.05	4, 5	7.3	8.0	8.2	7.8	33.0	35.0	35.5	34.5	74.6	67.2	71.0	70.9	1	9	20	14	0	1	0	
May	1	7	20	7	6	12	24	10	6	3.70	0.69	20, 21	7.4	7.1	7.1	7.2	37.8	40.3	39.9	39.3	77.5	70.9	70.9	73.1	2	11	18	14	0	0	0	
June	0	3	21	3	2	18	25	14	4	4.13	1.21	14	7.8	8.8	7.8	8.1	39.8	43.5	43.0	42.1	76.7	71.2	74.0	74.0	2	5	23	17	0	0	0	
July	0	2	27	3	10	12	24	9	6	6.88	1.24	17	9.3	9.0	9.2	9.2	44.7	47.1	45.5	45.8	83.1	77.6	76.7	79.1	0	4	27	23	0	0	0	
Aug	0	0	16	4	3	20	25	8	17	9.16	1.39	22	7.1	7.1	6.7	7.0	45.6	49.2	48.7	47.8	83.9	79.1	80.6	81.2	5	8	18	19	0	0	0	
Sept	0	2	30	8	8	7	12	9	14	8.13	3.16	14, 15	6.5	7.2	7.3	7.0	45.0	47.8	47.6	46.8	83.1	76.2	79.1	79.5	5	9	16	15	0	0	0	
Oct	5	4	45	4	6	6	10	8	5	13.31	2.84	10, 11	7.4	7.5	7.9	7.6	37.7	39.9	39.4	39.0	79.6	76.1	80.1	78.6	2	10	19	22	0	2	0	
Nov	0	28	30	1	2	6	8	7	8	10.63	2.16	5	6.1	7.5	6.7	6.8	25.5	26.4	25.7	25.9	75.6	73.2	74.7	74.5	6	7	17	20	5	13	0	
Dec	0	8	51	4	3	6	3	0	18	14.54	2.82	15	7.2	7.8	7.5	7.5	28.3	29.3	28.9	28.8	74.2	73.8	75.6	74.5	4	7	20	21	4	14	0	
Sums ..	10	121	398	74	49	108	144	99	92	102.87	....	......	86.3	90.5	86.4	87.7	423.8	450.6	444.9	439.7	929.1	877.2	898.2	901.5	47	92	226	218	13	56	0	
	Percentages.																								Percentages.							
Means .	0.9	11.0	36.3	6.8	4.5	9.9	18.2	9.0	8.4	......	....	....	7.2	7.5	7.2	7.3	35.3	37.6	37.1	36.6	77.4	73.1	74.8	75.1	12.9	25.2	61.9	59.7	3.6	15.3	0.0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 3.07 a. m., 11.07 a. m., and 7.07 p. m., local time.

Correction for instrumental error of barometer used: From 3.07 a. m., January 1, to 7.07 p. m., December 31, inclusive, +.003 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.070; February, 0.070; March, 0.070; April, 0.070; May, 0.060; June, 0.060; July, 0.060; August, 0.060; September, 0.060; October, 0.070; November, 0.070; December, 0.070.

FRED. W. FICKETT,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

SMITHVILLE, N. C.

[Latitude, 33° 55′ N.; longitude, 78° 1′ W. Magnetic variation, 0°. Elevation of barometer above sea-level, 34 feet. Elevation of exposed thermometer above ground, 17 feet. Elevation of rain-gauge above ground, 36 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30. 166	30. 122	30. 162	30. 150	30. 636	23	29. 473	9	1. 163	42. 6	49. 4	45. 3	45. 8	62	28	20	12	42	52. 5	39. 3	1, 789	1, 969	2, 017	5, 775	23	S. W.	21
Feb	30. 271	30. 234	30. 270	30. 258	30. 561	2	29. 961	25	. 600	49. 6	55. 9	50. 7	52. 1	70	16, 17	34	27	36	59. 8	45. 8	1, 902	2, 404	2, 459	6, 765	28	SE., S.	24, 25
Mar	30. 020	29. 960	29. 983	29. 988	30. 398	1	29. 516	26	. 882	44. 5	53. 5	48. 5	48. 8	68	19	27	23	41	57. 4	41. 0	2. 207	2, 798	3, 006	8, 011	38	NE.	26
Apr	29. 997	29. 958	30. 002	29. 986	30. 366	14	29. 493	23	. 873	56. 7	62. 9	58. 1	59. 2	76	20	40	1, 3	36	65. 1	52. 9	2, 292	2, 826	2, 528	7, 646	34	S., SW.	23
May	29. 991	29. 947	29. 972	29. 970	30. 243	18	29. 422	21	. 821	64. 9	74. 6	66. 0	68. 5	82	31	48	24	34	75. 9	60. 2	2, 253	2, 947	2, 649	7, 849	36	S.	31
June	30. 002	29. 964	29. 991	29. 986	30. 254	4	29. 750	26	. 504	75. 5	80. 8	75. 4	77. 2	91	21	64	2, 3, 16	27	83. 5	71. 4	2, 024	2, 811	2, 980	7, 815	38	N.	2
July	30. 042	30. 010	30. 032	30. 028	30. 292	22	29. 756	13	. 536	79. 3	85. 8	79. 5	81. 5	92	17, 25	70. 5	1	21. 5	87. 2	75. 2	2, 024	2, 592	2, 781	7, 397	29	S.	4
Aug	30. 003	29. 967	27. 996	29. 989	30. 152	18	29. 779	29	. 373	75. 0	83. 1	76. 1	78. 1	92	3	58	31	34	84. 6	71. 7	1, 753	2, 583	2, 368	6, 704	24	S.	5
Sept	29. 993	29. 959	29. 986	29. 979	30. 225	27	29. 144	11	1. 081	69. 6	76. 7	70. 9	72. 4	86	4, 5, 14	57. 5	1	28. 5	78. 4	66. 7	2, 112	3, 182	2, 668	7, 962	93	SE.	11
Oct	30. 081	30. 036	30. 065	30. 061	30. 401	17	29. 758	29	. 643	62. 2	70. 9	64. 1	65. 7	84. 2	3	48. 4	25	35. 8	72. 7	59. 8	2, 265	2, 859	2, 525	7, 649	38	SE.	13
Nov	30. 196	30. 137	30. 172	30. 168	30. 561	16	29. 874	14	. 687	51. 4	61. 6	54. 5	55. 8	74. 1	23	30	17	44. 1	63. 5	48. 4	1, 872	2, 458	1, 858	6, 188	27	NE.	27
Dec	30. 148	30. 100	30. 141	30. 130	30. 390	7	29. 677	27	. 713	47. 6	56. 5	51. 1	51. 7	68	8	24. 8	16	43. 2	59. 4	43. 8	1, 885	2, 363	1, 944	6, 192	33	W.	17
Sums ..	360. 910	360. 394	360. 772	360. 693	......	....	......	....	......	718. 9	811. 7	740. 2	756. 8	....	......	....	......	....	840. 0	676. 2	24, 378	31, 792	29, 783	85, 953	....	....	....
																					Averages.						
Means.	30. 076	30. 033	30. 064	30. 058	30. 636	*23	29. 144	†11	......	59. 9	67. 6	61. 7	63. 1	92	‡17, 25 §3	20	‖12	....	70. 0	56. 4	2, 031. 5	2, 649. 3	2, 481. 9	......	....	....	....

* January. † September. ‡ July. § August. ‖ January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	21	20	8	0	4	15	16	9	0	5.63	1.42	9	6.5	5.8	5.2	5.8	39.2	43.3	42.5	41.7	88.6	81.3	90.1	86.7	5	15	11	17	0	6	0	
Feb......	11	26	4	3	8	13	13	5	1	2.33	1.58	24, 25	3.3	6.7	4.1	4.7	45.2	47.0	46.9	46.4	85.7	75.5	87.8	83.0	10	10	8	10	0	0	0	
Mar	18	15	6	4	5	19	16	10	0	6.13	2.57	25, 26	4.3	5.8	3.9	4.7	37.5	42.6	41.9	40.7	77.4	68.7	80.1	75.4	11	12	8	10	0	3	0	
Apr	13	12	18	4	13	15	10	5	0	5.45	1.97	23	5.5	7.5	4.7	5.9	52.7	55.1	55.1	54.3	86.6	77.0	89.9	84.5	5	15	10	10	0	0	0	
May	16	12	6	3	5	35	11	5	0	3.60	1.96	1, 2	4.1	3.2	2.3	3.2	57.8	58.5	59.9	58.7	78.8	60.3	81.4	73.5	17	9	5	6	0	0	0	
June.....	3	11	2	12	11	34	13	4	0	6.95	2.76	2	5.7	5.6	3.6	5.0	69.6	70.9	70.5	70.3	82.3	72.5	85.2	80.0	9	13	8	11	0	0	1	
July	4	5	7	19	12	26	17	3	0	2.20	.89	30, 31	4.4	3.8	3.1	3.8	72.1	73.7	72.6	72.8	78.9	67.9	80.1	75.6	11	17	3	10	0	0	2	
Aug	18	19	9	5	7	22	10	2	1	2.58	1.38	8	4.2	5.3	3.3	4.3	68.9	69.6	69.9	69.5	81.7	65.2	81.7	76.2	12	13	6	8	0	0	1	
Sept	13	23	18	4	8	21	6	2	0	8.69	4.24	10, 11	5.0	5.6	4.1	4.9	66.1	67.5	66.2	66.6	88.9	74.9	85.6	83.1	12	9	9	11	0	0	0	
Oct	26	27	14	1	6	9	6	4	0	1.19	.44	12, 13	6.7	5.4	4.4	5.5	58.6	61.4	59.7	59.9	88.2	73.2	85.6	82.3	8	13	10	9	0	0	0	
Nov	31	11	6	6	14	13	3	6	0	0.35	.14	25	4.2	5.0	3.8	4.3	45.0	46.9	46.6	46.2	79.5	61.8	75.6	72.3	10	18	7	6	0	1	0	
Dec......	18	17	9	5	5	14	12	12	1	1.57	.41	27	4.1	4.0	3.4	3.8	42.4	46.1	44.0	44.2	82.8	71.1	78.2	77.4	11	16	4	9	0	3	0	
Sums ..	192	198	102	66	98	236	183	67	3	46.67	....	......	58.0	63.7	45.9	55.9	655.1	682.6	675.8	671.3	999.4	849.4	1,001.3	950.0	121	155	89	117	0	18	4	
	Percentages.																								Percentages.							
Means .	17.5	18.1	9.3	6.2	9.0	21.6	12.1	6.1	0.3	......	....	......	4.8	5.3	3.8	4.6	54.6	56.9	56.3	55.9	83.3	70.8	83.4	79.2	33.2	42.5	24.4	32.1	0.0	3.6	1.1	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.56 a. m., 2.56 p. m., and 10.56 p. m., local time.

Correction for instrumental error of barometer used: From 6.56 a. m., January 1, to 10.56 p. m., December 31, inclusive, +.022 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.040; February, 0.040; March, 0.040; April, 0.040; May, 0.040; June, 0.040; July, 0.030; August, 0.040; September, 0.040; October, 0.040; November, 0.040; December, 0.040.

ORIN PARKER,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SPRINGFIELD, ILL.

[Latitude, 39° 48′ N.; longitude, 89° 39′ W. Magnetic variation, 6° 15′ E. Elevation of barometer above sea-level, 644 feet. Elevation of exposed thermometer above ground, 89 feet. Elevation of rain-gauge above ground, 61 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.467	29.450	29.476	29.464	29.980	22	28.871	30	1.109	19.5	23.1	20.0	20.9	45.0	26	—10.0	21	55.0	29.6	12.8	2,280	2,802	2,625	7,707	42	NW.	10
Feb	29.589	29.559	29.579	29.576	30.074	18	28.917	24	1.157	26.0	33.6	28.8	29.5	64.0	16	— 2.4	5	66.4	38.4	20.7	1,927	2,015	2,011	[1]5,953	30	S.	16
Mar	29.390	29.355	29.379	29.375	29.926	3	28.862	18	1.064	34.0	44.3	36.5	38.8	73.0	18	13.5	7	59.5	48.9	28.7	2,487	3,026	2,668	8,181	40	NE.	18
Apr	29.265	29.224	29.243	29.244	29.616	2	28.696	22	0.920	47.4	61.7	53.4	54.2	85.0	14	30.0	2	55.0	65.8	43.3	2,262	2,730	2,499	7,491	40	S.	14
May	29.282	29.251	29.264	29.266	29.631	6	28.830	14	0.801	54.6	66.5	59.2	60.1	87.0	9	33.9	22	53.1	70.6	50.2	1,848	2,711	2,390	6,949	36	S.	18
June	29.281	29.257	29.257	29.265	29.587	1	28.877	10	0.710	64.9	75.4	68.7	69.7	90.0	29	48.8	14	41.2	77.9	61.0	1,493	2,114	1,748	5,355	40	N.	21
July	29.370	29.339	29.340	29.350	29.679	18	29.030	12	0.649	69.8	82.0	73.0	74.9	95.0	4	54.0	8	41.0	84.5	65.7	1,742	2,219	2,056	6,017	32	N.	13
Aug	29.419	29.390	29.393	29.401	29.631	6	29.194	21	0.437	64.0	78.0	69.4	70.5	90.0	22	54.9	24	35.1	79.9	61.4	1,538	1,712	1,688	4,938	20	NW.	2
Sept.....	29.410	29.361	29.381	29.384	29.739	9	29.040	24	0.699	54.9	72.9	61.7	63.2	88.0	15	39.4	9	48.6	74.7	52.2	1,816	2,114	2,109	6,039	31	NW.	20
Oct	29.418	29.398	29.404	29.407	29.852	15	28.785	29	1.067	49.3	58.1	52.1	53.2	82.8	8	34.4	{21 23}	48.4	60.0	46.2	2,086	2,286	2,245	6,617	31	S.	18
Nov	29.462	29.410	29.420	29.431	30.001	16	28.877	21	1.124	39.0	50.8	43.5	44.3	67.5	4	12.5	16	55.0	54.0	35.3	2,458	2,765	2,690	7,913	36	S.	26
Dec	29.413	29.395	29.433	29.414	29.750	14	28.835	26	0.915	30.3	37.9	33.2	33.8	64.0	1	4.1	17	59.9	44.5	26.1	2,472	2,721	2,499	7,692	30	S.	6
Sums..	352.766	352.389	352.569	352.577	......	...	......	....	......	553.7	684.2	599.5	612.6	....	....	......	....	....	728.8	503.6	24,409	29,215	27,228	80,852	....	....	....
																					Averages.						
Means.	29.397	29.366	29.381	29.381	30.074	*18	28.696	†22	......	46.1	57.0	50.0	51.0	95.0	‡4	—10.0	§21	....	60.7	42.0	2,034.1	2,434.6	2,269.0	......	....	....	....

[1] For 27 days and 11 hours.

* February. † April. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from— North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.	Number of calms.	Rainfall or melted snow. Total amount.	Any 3 consecutive 8 hourly measurements. Largest amount.	Date.	Washington time. Cloudiness (in tenths). 7 a. m.	3 p. m.	11 p. m.	Mean.	Dew-point. 7 a. m.	3 p. m.	11 p. m.	Mean.	Relative humidity (per cent.). 7 a. m.	3 p. m.	11 p. m.	Mean.	Number of days— Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	Remarks.
1883.										*In.*	*In.*						°	°	°	°												
Jan	10	6	6	10	12	8	21	20	0	1.96	0.53	16, 17	7.1	6.4	5.8	6.4	13.8	11.0	12.7	12.5	77.7	59.0	72.6	69.8	3	17	11	16	15	31	0	
Feb	6	5	11	8	9	11	9	23	2	7.53	3.56	2, 3	4.4	4.9	5.4	4.9	20.4	21.2	21.1	20.9	79.0	61.4	72.8	71.1	10	10	8	10	8	21	0	
Mar	12	16	4	6	4	18	8	25	0	1.36	0.60	5, 6	4.8	5.2	5.5	5.2	26.1	26.0	26.2	26.1	72.3	49.8	66.2	62.8	10	10	11	12	0	21	0	
Apr	9	13	4	12	25	7	11	7	2	4.42	1.61	21, 22	4.6	5.5	4.1	4.7	38.7	39.8	41.4	40.0	72.4	47.5	65.2	61.7	9	14	7	14	0	4	0	
May	14	2	5	3	30	6	14	12	7	6.61	2.30	25, 26	5.9	5.7	4.4	5.3	46.3	47.5	48.6	47.5	74.0	52.6	69.0	65.2	6	18	7	17	0	0	0	
June	11	5	3	11	15	13	13	15	4	8.40	2.80	8, 9	5.0	6.9	4.3	5.4	59.1	60.1	61.6	60.3	81.9	60.6	78.5	73.7	6	16	8	17	0	0	0	
July	9	6	4	5	30	21	12	6	0	3.77	1.38	16, 17	3.6	3.9	3.0	3.5	62.4	62.8	64.7	63.3	77.8	53.4	75.5	68.9	17	10	4	8	0	0	7	
Aug	10	13	14	7	13	12	10	13	1	0.95	0.59	15	3.8	5.4	2.1	3.6	57.3	57.5	59.4	58.1	79.0	51.5	71.2	67.2	10	19	2	4	0	0	0	
Sept	14	16	14	6	17	9	10	4	0	1.06	0.69	16	3.0	2.8	2.3	2.7	47.7	48.6	49.7	48.7	76.9	43.6	65.7	62.1	17	11	2	4	0	0	0	First light frost on 9th.
Oct	13	20	12	11	15	1	7	14	0	6.08	1.85	4, 5	6.8	6.6	5.4	6.3	43.8	44.1	44.6	44.2	81.8	63.1	76.5	73.8	5	12	14	16	0	0	0	First killing frost on 16th.
Nov	3	2	2	6	35	10	8	24	0	3.48	1.37	20, 21	3.3	4.4	3.7	3.8	30.9	31.2	33.1	31.7	73.2	50.7	67.5	63.8	12	14	4	7	2	11	0	
Dec	11	3	6	3	25	11	17	17	0	3.17	1.17	22, 23	5.0	5.8	5.8	5.5	24.0	25.0	25.8	24.9	77.8	61.0	74.6	71.0	9	12	10	11	3	19	0	
Sums	122	107	85	88	230	127	140	180	16	48.79	....	......	56.8	63.5	51.8	57.3	470.5	474.8	488.9	478.2	923.3	654.2	855.8	811.1	114	163	88	136	28	107	7	
	Percentages.																								Percentages.							
Means	11.1	9.8	7.8	8.0	21.0	11.6	12.8	16.4	1.5	.....	....	......	4.7	5.3	4.3	4.8	39.2	39.6	40.7	39.8	76.9	54.5	71.3	67.6	31.2	44.7	24.1	37.3	7.7	29.3	1.9	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.10 a. m., 2.10 p. m., and 10.10 p. m., local time.
Correction for instrumental error of barometer used: From 6.10 a. m., January 1, to 10.10 p. m., December 31, inclusive, +.013 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.730; February, 0.730; March, 0.720; April, 0.700; May, 0.670; June, 0.670; July, 0.660; August, 0.660; September, 0.670; October, 0.690; November, 0.720; December, 0.730.

T. B. JENNINGS,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

SPOKANE FALLS, WASH. T.

[Latitude, 47° 39′ N.; longitude, 117° 24′ W. Magnetic variation, 21° 30′ E. Elevation of barometer above sea-level, 1,906 feet. Elevation of exposed thermometer above ground, 22 feet. Elevation of rain-gauge above ground, 32 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28. 094	28. 085	28. 048	28. 076	28. 584	19	27. 588	11	. 996	20. 1	25. 9	25. 3	23. 8	47. 2	29	−27. 7	18	74. 9	31. 1	16. 2	1, 131	900	1, 280	3, 311	31	SW.	28
Feb	28. 207	28. 224	28. 206	28. 212	28. 680	4	27. 374	13	1. 306	14. 0	23. 7	21. 6	19. 8	47. 3	28	−21. 5	4	68. 8	30. 8	9. 5	532	603	855	1, 990	24	E.	1
Mar	28. 052	28. 062	28. 013	28. 042	28. 452	2	27. 517	28	. 935	33. 5	46. 4	42. 4	40. 8	67. 2	20	25. 0	4, 26	42. 2	53. 5	30. 6	562	944	1, 166	2, 672	25	SW.	17
Apr	27. 912	27. 910	27. 908	27. 910	28. 235	4	27. 443	19	. 792	39. 3	51. 8	47. 0	46. 0	70. 0	26	29. 0	4	41. 0	55. 9	35. 7	1, 319	1, 731	2, 089	5, 139	37	SW.	7
May	27. 975	27. 960	27. 949	27. 964	28. 392	19	27. 545	12	. 847	46. 5	62. 1	57. 2	55. 3	78. 7	11	34. 0	2	44. 7	66. 9	43. 5	850	1, 371	1, 633	3, 854	31	S.	23
June	28. 009	27. 991	27. 943	27. 981	28. 275	5	27. 621	13	. 654	52. 9	73. 6	69. 5	65. 3	95. 4	28	39. 2	1	56. 2	79. 1	49. 7	968	1, 333	1, 843	4, 144	28	SW.	4
July	28. 042	28. 009	27. 968	28. 006	28. 155	24	27. 788	12	. 367	57. 7	81. 1	74. 4	71. 1	96. 7	8	46. 0	3, 16	50. 7	85. 0	53. 4	743	1, 086	1, 489	[1]3, 318	23	W.	19
Aug	28. 019	27. 970	27. 940	27. 976	28. 229	19	27. 740	20	. 489	56. 2	78. 6	71. 6	68. 8	96. 3	3	39. 0	31	57. 3	83. 2	52. 5	672	801	1, 084	2, 557	23	SW.	21
Sept	28. 022	28. 022	27. 973	28. 006	28. 389	20	27. 679	29	. 710	47. 6	66. 7	58. 8	57. 7	84. 0	4	35. 0	19	49. 0	72. 4	44. 2	852	575	778	1, 705	16	SW.	9, 19
Oct	27. 966	27. 952	27. 930	27. 949	28. 317	10	27. 352	27	. 965	37. 7	50. 2	44. 9	44. 3	70. 4	3	24. 0	11	46. 4	53. 7	35. 0	669	850	1, 129	2, 648	26	SW.	28
Nov	27. 984	27. 952	27. 946	27. 961	28. 387	11	27. 355	24	1. 032	34. 5	43. 2	39. 4	39. 0	57. 6	11	19. 8	25	37. 8	46. 6	32. 0	1, 127	970	1, 278	3, 375	31	SW.	26
Dec	28. 053	28. 050	28. 056	28. 056	28. 679	31	27. 326	26	1. 353	25. 9	32. 9	20. 7	29. 5	47. 0	1	3. 5	30	43. 5	35. 6	22. 4	840	663	870	2, 373	28	SW.	27
Sums..	336. 336	336. 205	335. 880	336. 139	....	....	....	....	......	465. 9	636. 2	581. 8	561. 4	.....	...	......	....	.....	693. 8	424. 7	9, 765	11, 827	15, 494	37, 086	....	....	....
																					Averages.						
Means.	28. 028	28. 017	27. 990	28. 012	28. 680	*4	27. 326	†26	......	38. 8	53. 0	48. 5	46. 8	96. 7	‡8	−27. 7	§18	.....	57. 8	35. 4	813. 8	985. 6	1, 291. 2	....	....	....	....

---

* February.

† December.

‡ July.

§ January.

[1] For 29½ days.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	7	19	4	0	8	20	7	13	15	2.13	0.41	5	7.2	8.1	6.8	7.4	15.7	21.3	21.4	19.5	82.6	83.1	84.6	83.4	2	14	15	18	13	28	0	
Feb	1	6	32	4	2	12	3	3	21	2.95	1.14	17, 18	3.2	4.6	3.1	3.6	9.0	17.4	16.8	14.4	80.2	77.5	81.4	79.7	15	7	6	13	14	23	0	
Mar	4	19	16	4	8	12	4	4	22	0.75	0.34	28, 29	3.3	4.5	2.5	3.4	30.3	36.3	35.6	34.1	88.6	70.4	78.8	79.1	15	11	5	5	0	21	0	
Apr	10	7	11	2	17	32	3	2	6	1.93	0.50	30	3.8	6.2	2.9	4.3	34.4	35.4	35.6	35.1	83.2	57.9	66.9	69.3	9	16	5	13	0	6	0	
May	7	17	11	2	21	22	6	4	3	2.11	0.61	1	4.6	4.4	2.2	3.7	40.7	40.5	43.9	41.7	80.9	50.0	64.2	65.0	14	14	3	9	0	0	0	
June	10	5	0	2	15	31	15	4	8	0.60	0.60	10, 11	2.4	2.8	1.9	2.4	45.3	43.1	46.3	44.9	75.5	36.6	45.4	52.5	19	9	2	2	0	0	2	
July	11	11	1	4	5	33	9	5	14	0.00	0.00	......	1.6	2.2	1.5	1.8	46.2	42.6	46.5	45.1	66.2	26.6	38.6	43.8	23	8	0	0	0	0	5	
Aug	21	7	0	0	7	25	10	1	22	0.15	0.15	16	1.1	1.2	1.4	1.2	41.5	49.0	47.2	45.9	59.2	38.8	42.6	46.9	27	3	1	1	0	0	7	
Sept	15	4	6	0	8	16	5	6	30	0.08	0.04	8, 9	1.8	1.8	0.7	1.4	39.9	46.5	43.9	43.4	74.8	49.7	60.0	61.5	23	7	0	4	0	0	0	
Oct	16	11	3	3	13	20	7	1	19	1.48	0.40	17	3.9	5.5	4.1	4.5	30.3	37.3	36.6	34.7	75.5	65.9	74.7	72.0	11	12	8	10	0	11	0	
Nov	9	5	1	0	18	32	9	4	11	1.98	0.64	24	5.1	4.5	4.2	4.6	28.6	36.0	33.2	32.6	79.1	77.4	79.7	78.7	10	13	7	12	1	18	0	
Dec	21	2	2	1	5	14	12	14	23	0.21	0.06	21	4.3	4.5	3.5	4.1	18.1	25.3	22.3	21.9	71.6	75.2	73.4	73.4	13	12	6	7	9	29	0	
Sums	132	113	87	22	127	269	90	61	194	14.37	......	......	42.3	50.3	34.8	42.4	380.0	430.7	429.3	418.3	917.4	709.1	789.8	805.3	181	126	58	94	37	136	14	
	Percentages.																								Percentages.							
Means	12.1	10.3	7.9	2.0	11.6	24.6	8.2	5.6	17.7	......	......	......	3.5	4.2	2.9	3.5	31.7	35.9	35.8	34.4	76.4	59.1	65.8	67.1	49.6	34.5	15.9	25.8	10.1	37.8	3.8	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.19 a. m., 12.19 p. m., and 8.19 p. m., local time.

Correction for instrumental error of barometer used: From 4.19 a. m., January 1, to 8.19 p. m., December 31, inclusive, +.005 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.14; February, 2.18; March, 2.18; April, 2.06; May, 2.05; June, 2.04; July, 1.98; August, 2.00; September, 2.04; October, 2.08; November, 2.08; December, 2.13.

D. MOORE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

STARKVILLE, MISS.

[Latitude, 33° 35′ N.; longitude, 88° 49′ W. Magnetic variation, 6° E. Elevation of barometer above sea-level, 445 feet. Elevation of exposed thermometer above ground, 41 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.698	29.657	29.690	29.682	30.239	22	29.318	20	.921	39.4	49.0	43.3	43.9	71	27	17	21	54	52.3	36.2	2,181	2,217	2,128	6,526	32	SW.	30
Feb	29.799	29.752	29.774	29.775	30.237	27	29.365	24	.872	44.8	56.0	51.5	50.8	81	16	24	18	57	61.6	42.2	2,227	2,304	2,274	6,865	30	SW.	24
Mar	29.623	29.558	29.580	29.587	30.018	1	29.207	30	.811	46.2	60.6	52.5	53.1	79	30	28	20	51	63.2	43.6	2,316	2,284	2,361	6,961	28	NW.	10
Apr	29.517	29.475	29.492	29.495	29.865	3	28.899	22	.966	58.8	71.1	63.5	64.5	85	13, 14	40	3	45	73.7	75.8	1,979	2,360	2,238	6,577	37	N., SW.	11, 23
May	29.575	29.537	29.548	29.553	29.785	6	29.225	20	.560	63.4	76.4	68.1	69.3	87	8	40	22	47	78.2	59.3	1,930	2,342	2,055	6,327	34	SW.	9
June[1]	29 567	29.522	29.530	29.540	29.750	1	29.312	10	.438	72.1	84.6	76.1	77.6	90	12, 15	58	1	32	86.0	68.8	657	815	698	2,170	24	S.	18
July																											
Aug																											
Sept																											
Oct																											
Nov																											
Dec																											
Sums																											
																					Averages.						
Means																											

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[1] Station closed June 15.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan	20	4	7	8	19	3	10	18	5	9.85	2.06	4	6.2	6.8	5.3	6.1	35.3	38.1	36.6	36.7	85.6	70.4	78.9	78.3	7	12	12	16	1	10	0	
Feb	30	4	7	11	12	7	3	6	4	8.41	2.43	23, 24	7.5	6.6	5.6	6.6	40.1	42.0	42.3	41.5	84.2	63.9	73.5	73.9	4	11	13	14	0	7	0	
Mar	26	4	5	5	24	7	7	8	7	3.02	1.06	6, 7	5.4	5.4	4.5	5.1	37.4	39.2	39.6	38.7	72.0	48.1	63.5	61.2	11	9	11	8	0	2	0	
Apr	24	3	6	8	20	10	8	4	7	7.71	2.10	6, 7	6.2	5.8	4.0	5.4	53.7	55.8	54.5	54.7	83.9	60.5	73.5	72.6	7	18	10	13	0	0	0	
May	20	4	4	12	30	5	12	1	5	4.83	1.64	9, 10	4.1	5.2	2.8	4.0	56.8	58.6	57.9	57.8	79.6	53.4	70.2	68.4	10	18	3	6	0	0	0	
June*	8	2	2	7	17	5	1	0	8	3.75	1.29	13	5.5	4.9	2.1	4.2	67.0	69.4	68.9	68.4	84.4	60.9	79.3	74.8	6	8	1	7	0	0	0	
July																																
Aug																																
Sept																																
Oct																																
Nov																																
Dec																																
Sums																																
	Percentages.																															
Means																																

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.13 a. m., 2.13 p. m., and 10.13 p. m., local time.

Corrections for instrumental errors of barometer used: From 6.13 a. m., January 1, to 10.13 p. m., April 30, inclusive, + .026 inch; from 6.13 a. m., May 1, to 10.13 p. m., June 15, inclusive, — .004 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.500; February, 0.500; March, 0.490; April, 0.480; May, 0.470; June, 0.470.

CHARLES DILL,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

STOCKTON, FORT, TEX.

[Latitude, 30° 59′ N.; longitude, 102° 53′ W. Magnetic variation, 10° 45′ E. Elevation of barometer above sea-level, 3,010 (B) feet. Elevation of exposed thermometer above ground, 5 feet. Elevation of rain-gauge above ground, $\frac{1}{12}$ foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	27.067	27.037	27.045	27.050	27.412	8	26.746	18	.606	30.0	54.9	37.3	40.7	80	31	6	21	74	58.5	25.0	1,717	1,984	2,042	5,743	35	SW.	16
Feb	27.100	27.079	27.099	27.093	27.574	26	26.559	15	1.015	36.8	54.2	45.1	45.4	82	13, 15	8	4	74	61.1	32.5	1,797	1,885	2,485	6,167	37	N.	24
Mar	26.998	26.971	26.986	26.985	27.367	3	26.606	23	.761	45.6	65.5	53.1	54.7	89	26	29	19	60	70.7	41.8	1,977	1,991	2,573	6,541	40	NE.	15
Apr	26.910	26.885	26.887	26.894	27.418	15	26.439	20	.979	49.5	75.1	60.0	61.5	92	20	31	15	61	78.1	45.1	1,939	2,794	3,200	7,933	44	SW.	21
May	26.948	26.928	26.918	26.931	27.227	26	26.641	16	.586	58.6	86.9	69.2	70.6	98	28, 29	45	10	53	86.5	55.7	2,262	2,422	2,887	7,571	39	SE.	16
June	26.961	26.931	26.934	26.942	27.106	30	26.665	8	.441	68.8	91.5	78.1	79.5	101	8	61	12, 13, 30	40	95.6	65.5	2,190	2,369	3,084	7,643	35	SW., SE.	5, 7
July	27.028	27.011	27.002	27.014	27.218	18	26.822	14	.396	69.5	89.2	78.4	79.0	103	14	60	2, 3	43	92.4	65.8	2,577	2,337	3,438	8,352	32	SE.	4, 17
Aug	27.060	27.029	27.040	27.043	27.198	28	26.877	11	.321	68.5	92.3	78.3	79.7	98	9, 21	54	30	44	94.2	65.0	1,569	1,639	2,768	5,976	32	NE.	23
Sept	27.080	27.048	27.067	27.065	27.321	21	26.819	13	.502	61.6	81.0	68.5	70.4	93	1, 12	40	23	53	82.5	57.1	1,561	1,747	2,340	5,648	48	SW.	30
Oct	27.008	26.962	26.991	26.987	27.376	31	26.673	27	.703	56.5	75.1	63.5	65.0	87	1, 6	34	29, 30	53	77.1	58.3	1,875	1,710	2,543	6,128	40	SE.	16, 17
Nov	27.099	27.058	27.075	27.077	27.471	12	26.609	9	.772	43.8	64.6	50.4	52.9	87	4	24	27	63	67.2	40.2	763	945	1,117	2,825	24	SE., N.	6, 14
Dec	27.100	27.059	27.104	27.088	27.341	14	26.803	29	.738	39.7	60.3	44.9	48.3	80	22	16	9	64	62.6	35.7	975	1,187	1,300	3,552	31	SE.	28
Sums	324.359	323.998	324.148	324.169	......	...	.....	...	.....	628.9	887.6	726.8	747.7	...	.....	...	....	....	926.5	582.2	21,202	23,010	29,867	74,079	...	....	......
																					Averages.						
Means	27.030	27.000	27.012	27.014	27.574	*26	26.439	†20	.....	52.4	74.0	60.6	62.3	103	‡14	6	§21	....	77.2	48.5	1,766.8	1,917.5	2,488.9	....	...	....	......

* February. † April. ‡ July. § January.

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths.)				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	7	5	2	4	16	34	8	15	2	.00	.00	......	1.8	2.4	1.6	1.9	19.7	25.1	22.9	22.6	68.0	37.3	57.5	54.3	22	9	0	0	1	26	0	
Feb	13	11	11	13	5	20	6	4	1	.54	.33	23	4.9	4.7	4.2	4.6	29.0	31.8	33.0	31.3	74.6	46.7	64.6	62.0	5	18	5	3	2	10	0	
Mar	5	8	8	13	12	30	5	11	1	1.77	.63	3, 15, 16	3.1	4.2	3.2	3.5	39.0	39.5	42.8	40.4	80.3	43.0	70.8	64.7	18	10	3	6	0	3	0	
Apr	1	5	7	18	6	33	4	11	5	.89	.49	29	2.6	3.2	1.9	2.6	36.7	42.6	41.2	40.2	64.1	36.4	54.1	51.5	20	7	3	5	0	1	1	
May	5	4	4	34	14	17	6	5	4	2.25	1.65	11, 12	3.0	2.8	1.5	2.4	52.5	57.7	59.2	56.5	80.6	43.3	70.8	64.9	18	9	4	4	0	0	8	
June	1	3	3	49	8	13	2	4	7	1.11	.35	30	2.5	2.3	1.9	2.3	63.1	61.7	66.3	63.7	82.4	40.6	69.0	64.0	20	8	2	6	0	0	24	
July	0	7	1	62	12	4	1	2	4	2.64	2.46	7, 8	2.7	5.5	2.0	3.4	63.0	63.3	62.5	62.9	81.0	43.8	59.9	61.6	15	14	2	3	0	0	20	
Aug	1	7	2	43	20	15	1	2	2	.85	.38	10	2.9	4.8	2.4	3.4	57.2	58.1	58.0	57.8	68.1	32.6	51.3	50.7	12	19	0	8	0	0	29	
Sept	2	6	8	38	8	12	5	6	5	14.68	7.04	19, 20	4.4	5.0	4.3	4.6	56.0	56.1	58.8	57.0	82.4	45.1	73.1	66.9	9	14	7	13	0	0	4	
Oct	2	9	5	35	6	19	6	7	4	.51	.28	1	4.7	5.7	3.7	4.7	50.9	51.2	53.9	52.0	82.6	47.7	73.3	67.9	9	15	7	8	0	0	0	
Nov	9	4	2	11	10	8	0	9	37	1.29	1.24	10, 11	4.3	4.4	3.3	4.0	36.8	37.1	41.6	38.5	76.9	40.6	73.5	63.7	11	12	7	5	0	3	0	
Dec	8	3	0	8	8	11	7	11	37	.86	.79	12	4.1	3.5	3.1	3.6	33.4	33.2	35.0	33.9	78.7	40.7	69.6	63.0	13	13	5	6	0	8	0	
Sums ...	54	72	53	328	125	216	51	87	109	27.39	....	....	41.0	48.5	33.1	41.0	537.3	557.4	575.2	556.8	919.7	497.8	787.5	735.2	172	148	43	67	3	51	86	
	Percentages.																								Percentages.							
Means ..	4.9	6.6	4.8	30.0	11.4	19.7	4.7	7.9	10.0	.....	.....	....	3.4	4.0	2.8	3.4	44.8	46.4	47.9	46.4	76.6	41.5	65.6	61.2	47.1	40.5	12.3	18.4	0.8	14.0	23.6	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.16 a. m., 1.16 p. m., and 9.16 p. m., local time.
Correction for instrumental error of barometer used: From 5.16 a. m., January 1, to 9.16 p. m., December 31, inclusive, -.029 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 3.140; February, 3.130; March, 3.080; April, 3.030; May, 3.010; June, 2.920; July, 2.940; August, 2.940; September, 2.960; October, 3.030; November, 3.120; December, 3.140.

J. W. BYRAM,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

TATOOSH ISLAND, WASH. T.

[Latitude, 48° 23′ N.; longitude, 124° 44′ W. Magnetic variation, 23° E. Elevation of barometer above sea-level, 86 feet. Elevation of thermometers above ground: exposed, 5 feet; maximum, 6 feet; minimum, 6 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	......
Feb	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	......
Mar	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	......
Apr	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	......
May	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	......
June	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	......
July	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	......
Aug	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	......
Sept	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	......
Oct.[1]	29.893	29.914	29.903	29.903	30.256	20	29.236	27	1.020	46.5	49.8	47.9	48.1	63.5	1	38.0	21	25.5	54.0	45.0	2,649	2,964	2,596	8,209	44	E.	24
Nov	20.920	29.940	29.914	29.925	30.365	11	29.386	24	.979	43.3	45.2	45.0	44.5	52.2	28	32.4	26	19.8	48.1	42.1	3,993	3,649	3,830	11,472	52	SW.	28
Dec	29.924	29.909	29.917	29.917	30.348	12	29.051	26	1.297	41.4	43.7	43.4	42.8	54.2	9	25.8	31	28.4	46.5	40.2	4,086	4,247	4,244	12,577	51	SW.	26
Sums	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	......	......	......	......	...	......	......
Means	......	......	......	......	......	...	......	...	......	......	......	......	......	......	...	......	...	......	......	......	Averages.			......	...	......	......

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[1] Station opened October 1, 1883.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan																																
Feb																																
Mar																																
Apr																																
May																																
June																																
July																																
Aug																																
Sept																																
Oct.[1]	1	7	30	11	7	15	10	4	8	4.80	.93	7, 8	6.1	5.4	5.1	5.5	44.8	45.2	44.6	44.9	94.1	85.1	89.0	89.4	7	14	10	14	0	0	0	First frost on 20th.
Nov	1	0	32	0	9	21	22	8	2	15.83	4.49	28, 29	7.9	7.7	7.5	7.7	42.0	41.9	42.3	42.1	95.2	88.8	90.7	91.6	4	6	20	24	0	0	0	First snow on 23d.
Dec	0	8	40	4	18	12	11	5	0	10.45	2.01	26	7.5	7.1	6.9	7.2	38.5	39.5	39.3	39.1	90.2	85.9	86.6	87.6	5	7	19	22	0	2	0	
Sums																																
	Percentages.																								Percentages.							
Means																																

[1] Station opened October 1, 1883.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 3.49 a. m., 11.49 a. m., and 7.49 p. m., local time.
Correction for instrumental error of barometer used: From 3.49 a. m., October 1, to 7.49 p. m., December 31, inclusive, +.009 inch.
Constants not received.

P. CONNOR,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

THOMAS, FORT, ARIZ.

[Latitude, 33° 4′ N.; longitude, 110° 2′ W. Magnetic variation. 13° E. Elevation of barometer above sea-level, 2,710 (B) feet. Elevation of exposed thermometer above ground, 3 feet. Elevation of rain-gauge above ground, 2 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.												Wind.[1]						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	27.348	27.318	27.315	27.327	27.681	22	26.912	19	.769	32.2	48.4	40.1	40.2	66.0	31	12.8	21	53.2	53.6	27.8	......	......	......	......	......	......	......
Feb	27.328	27.289	27.294	27.304	27.723	17	26.931	2	.792	38.5	53.8	46.6	46.3	68.5	1	16.8	7	51.7	58.7	35.5	......	......	......	......	......	......	......
Mar	27.300	27.233	27.237	27.257	27.494	1	26.978	23	.516	46.7	65.4	57.1	56.4	80.0	26, 27	38.3	20, 25	41.7	60.6	45.0	......	......	......	......	......	......	......
Apr	27.190	27.151	27.135	27.159	27.604	15	26.869	20	.735	43.0	70.5	60.5	58.0	84.0	19	24.3	15	59.7	75.1	41.5	......	......	......	......	......	......	......
May	27.194	27.144	27.133	27.157	27.384	20	27.017	7	.367	51.8	82.1	69.7	67.9	96.0	28	37.8	4	58.2	85.2	49.7	......	......	......	......	......	......	......
June[2]	27.164	27.112	27.096	27.124	27.261	2	26.942	8	.319	63.8	97.1	84.2	81.7	109.0	26, 27	50.9	2	58.1	99.9	62.6	......	......	......	......	......	......	......
July[2]	......	......	......	......	......	......	......	......	......	70.5	94.3	82.0	82.3	103.0	2, 17	61.9	16 17 29	41.1	96.9	69.7	......	......	......	......	......	......	......
Aug.[2]	......	......	......	......	......	......	......	......	......	70.4	93.0	80.9	81.4	101.0	13	61.9	30	39.1	96.3	69.3	......	......	......	......	......	......	......
Sept.[2]	......	......	......	......	......	......	......	......	......	60.6	89.4	77.2	75.7	100.0	1, 2, 3, 5	45.9	25	54.1	91.5	59.7	......	......	......	......	......	......	......
Oct.[2]	27.260	27.184	27.205	27.216	27.486	29	27.004	27	.482	43.1	73.6	60.0	58.9	89.5	1, 2	30.0	29	59.5	77.2	42.8	......	......	......	......	......	......	......
Nov	27.341	27.281	27.287	27.303	27.571	12	27.029	19	.542	34.6	63.0	48.3	48.6	77.0	3	21.8	22 24 25 26	55.2	66.2	31.8	......	......	......	......	......	......	......
Dec	27.362	27.318	27.338	27.339	27.685	8	27.051	4	.634	37.4	54.1	45.0	45.5	71.0	1	19.8	31	51.2	57.4	34.0	......	......	......	......	......	......	......
Sums	......	......	......	......	......	......	......	......	......	592.6	884.7	751.6	742.9	......	......	......	......	......	927.6	568.9	......	......	......	......	......	......	......
																					Averages.						
Means	......	......	......	......	......	......	......	......	......	49.4	73.7	62.6	61.9	109.0	*26 7	12.8	†21	. .	77.8	47.4	......	......	......	......	......	......	......

[1] No anemometer in use.

[2] Barometer unserviceable from 7 a. m., June 19, to 7 a. m., October 13, 1883.

* June.

† January.

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	6	1	1	9	9	6	7	10	44	1.23	.68	3, 4	2.5	3.5	2.6	2.9	27.0	31.6	32.8	30.5	81.5	54.2	76.0	70.6	18	10	3	6	0	22	0	
Feb......	3	4	14	5	4	4	8	6	36	1.54	.67	20, 21	3.6	5.2	4.5	4.4	33.0	33.9	36.6	34.5	81.1	48.9	69.6	66.5	9	17	2	8	0	10	0	
Mar	5	0	6	4	4	1	10	4	59	1.83	.91	2, 8	3.9	4.4	3.9	4.1	42.3	42.1	43.9	42.8	85.4	45.3	63.7	64.8	12	17	2	6	0	0	0	
Apr	3	0	0	10	0	3	19	5	50	0	0	......	1.7	2.4	1.1	1.7	32.1	30.0	30.8	30.8	66.8	23.5	34.7	41.5	23	7	0	0	0	2	0	
May	8	1	8	8	5	10	17	11	25	.79	.77	16	2.4	2.2	1.0	1.9	36.2	33.8	36.2	35.2	56.8	19.7	31.5	35.8	22	8	1	2	0	0	12	
June.....	6	1	8	4	0	0	11	19	41	0	0	......	1.3	1.3	1.4	1.3	42.9	41.1	42.4	42.1	47.3	14.9	24.0	28.7	24	6	0	6	0	0	29	
July	15	3	5	17	5	2	9	28	9	1.85	.68	29	4.0	3.1	4.3	3.8	57.2	54.4	58.6	56.7	64.2	27.4	47.7	46.4	10	20	1	12	0	0	28	
Aug	1	0	7	21	13	7	16	18	7	2.52	1.69	18, 19	2.9	2.8	4.5	3.4	60.6	57.3	61.0	59.8	72.4	31.1	54.1	52.5	14	15	2	9	0	0	30	
Sept	0	1	6	36	15	1	14	3	14	(*)	(*)	27	2.1	2.3	2.1	2.2	42.1	49.8	47.4	46.4	51.5	27.8	36.2	38.5	19	9	2	0	0	0	16	
Oct	0	1	6	20	9	9	27	4	17	.52	.20	16 27 28	2.0	3.3	1.9	2.4	22.3	38.1	39.5	33.3	44.3	29.9	49.7	41.3	20	8	3	4	0	8	0	
Nov	3	1	7	15	26	5	3	4	26	0	0	.....	1.6	3.0	.9	1.8	24.5	35.8	32.0	30.8	67.1	39.7	54.7	53.8	20	10	0	0	0	19	0	
Dec......	0	0	10	10	11	0	9	8	45	1.07	.34	4	3.9	4.0	3.2	3.7	32.4	27.5	35.9	35.3	82.7	54.7	72.5	70.0	14	10	7	8	0	16	0	
Sums ..	50	13	78	162	101	48	150	120	373	10.85	....	......	31.9	37.5	31.4	33.6	452.6	484.9	497.2	470.2	800.1	417.1	614.4	610.4	205	137	23	55	0	72	115	
	Percentages.																								Percentages.							
Means.	4.6	1.2	7.1	14.8	9.2	4.4	13.7	11.0	34.1	....	....	......	2.7	3.1	2.6	2.8	37.7	40.4	41.4	39.8	66.7	34.8	51.2	50.9	56.2	37.5	6.3	15.1	0	19.7	31.5	

* Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.49 a. m., 12.49 p. m., and 8.49 p. m., local time.

Corrections for instrumental errors of barometer used: From 4.49 a. m., January 1, to 4.49 a. m., June 19, inclusive, +.019 inch; from 4.49 a. m., October 13, to 8.49 p. m., December 31, inclusive, +.014 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 2.830; February, 2.890; March, 2.780; April, 2.730; May, 2.670; June, 2.630; October, 2.710; November, 2.840; December, 2.820.

ROBT. C. LORD,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

TOLEDO, OHIO.

[Latitude, 41° 40′ N.; longitude, 83° 34′ W. Magnetic variation, 1° 15′ E. Elevation of barometer above sea-level, 651 feet. Elevation of exposed thermometer above ground, 65 feet. Elevation of rain-gauge above ground, 106 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a.m.	3 p.m.	11 p.m.							7 a.m.	3 p.m.	11 p.m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p.m. to 7 a.m.	7 a.m. to 3 p.m.	3 p.m. to 11 p.m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	20.419	29.380	29.418	29.406	29.844	23	28.838	20	1.006	19.3	25.9	21.6	22.3	49.0	30	− 9.0	22	58.0	29.1	15.0	2,343	2,339	2,458	7,140	38	SW.	13
Feb	29.518	20.483	29.495	29.499	29.922	18	28.980	24	.942	24.7	31.6	28.5	28.8	65.0	16	5.0	10	60.0	35.8	20.5	1,991	2,224	2,131	6,316	32	W.	25
Mar.....	29.311	29.263	29.297	29.290	29.764	5	28.702	10	1.062	27.1	36.1	31.8	31.7	64.0	18	7.0	20	57.0	41.0	22.5	2,201	2,980	2,850	8,031	40	NE.	18
Apr.....	29.279	29.244	29.263	29.262	29.552	4	28.868	11	.684	42.9	52.8	46.6	47.4	80.0	14	20.5	2	50.5	55.7	38.2	2,802	3,285	2,667	8,234	45	E.	28
May ...	29.258	29.203	29.239	29.233	29.586	6	28.844	14	.742	52.1	61.7	53.7	55.8	80.0	19	32.0	21	48.0	65.0	46.8	2,131	2,835	2,652	7,618	40	N.	14
June...	29.234	29.201	29.213	29.216	29.659	1	28.828	10	.831	66.6	74.9	67.7	69.7	88.0	17	45.0	1	43.0	76.7	61.4	1,527	2,508	1,999	6,034	30	W.	11
July ...	29.305	29.268	29.280	29.284	29.553	18	28.972	12	.581	69.9	70.5	71.2	73.5	93.0	4	50.0	9	43.0	80.8	63.8	1,723	2,520	2,080	6,323	36	NE.	24
Aug....	29.375	29.341	29.356	29.357	29.578	7	29.081	2	.492	64.2	75.6	67.7	69.2	91.0	22	52.0	14, 27	39.0	76.6	59.3	1,373	2,293	1,783	5,449	25	NE.	26, 29
Sept ...	29.391	29.348	29.371	29.370	29.751	9	28.905	24	.846	55.8	66.2	59.8	60.6	82.0	2	37.0	9	45.0	68.5	52.0	1,572	2,268	2,000	5,840	34	NE.	18
Oct	29.409	29.379	29.401	29.396	29.903	16	28.675	29	1.228	48.5	55.6	51.2	51.8	83.0	9	34.0	23	49.0	58.5	44.7	1,880	2,699	2,121	6,700	36	E., W.	15, 30
Nov.....	29.384	29.351	29.372	29.369	29.912	16	28.796	21	1.117	40.9	48.6	43.2	44.2	68.0	8	13.0	16	55.0	52.4	36.4	2,506	2,842	2,441	7,789	40	W.	22
Dec	29.356	29.336	29.367	29.353	29.809	22	28.856	27	.953	30.2	35.9	32.1	32.7	58.2	13	10.2	22	48.0	40.1	25.9	2,023	2,469	2,205	6,607	28	NW.	2
Sums ..	352.239	351.797	352.072	352.035	......	....	....	....	.....	542.2	644.4	575.1	587.2	....	...	......	......	.....	680.2	486.5	23,572	31,262	27,387	83,221	....	....	.....
																						Averages.					
Means.	29.353	29.310	29.389	29.336	29.922	*18	28.675	†29	.....	45.2	53.7	47.9	48.9	93.0	‡4	− 9.0	§22	.....	56.7	40.5	1,964.3	2,605.2	2,282.2	......	....	....	.....

* February. † October. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										In.	In.						°	°	°	°												
Jan....	6	14	4	6	10	25	16	8	4	1.77	.41	17	7.2	6.2	6.3	6.6	13.0	15.5	14.7	14.4	76.0	65.1	74.7	71.9	6	11	14	15	16	29	0	
Feb....	5	7	11	1	4	20	30	6	0	4.28	2.26	3	6.9	7.6	6.7	7.1	17.9	19.9	19.8	19.2	74.9	61.7	69.8	68.8	2	11	15	11	10	23	0	
Mar...	4	11	11	2	8	15	27	15	0	.78	.61	18, 19	5.6	6.6	5.0	5.7	15.7	17.5	19.1	17.4	62.2	46.6	58.8	55.9	9	9	13	8	4	26	0	
Apr...	10	9	20	2	21	9	13	6	0	1.57	.60	5	5.7	6.4	4.2	5.4	31.5	32.6	33.6	32.6	64.7	48.7	61.5	58.8	6	16	8	10	0	7	0	
May...	19	8	9	5	19	9	16	8	0	5.69	1.29	14, 15	6.0	7.5	6.1	6.5	42.3	43.7	43.3	43.1	70.3	55.0	69.3	64.9	6	11	14	15	0	0	0	
June...	3	6	7	5	25	19	19	4	2	2.99	.73	6	6.2	7.6	5.0	6.3	57.7	58.4	59.1	58.4	74.2	58.2	74.6	69.0	8	17	10	12	0	0	0	
July...	9	3	4	2	19	36	17	2	1	4.26	1.39	20, 21	4.4	6.7	3.8	5.0	61.1	60.9	61.8	61.3	73.4	54.7	72.7	66.9	7	19	5	9	0	0	2	
Aug...	17	12	9	3	7	18	13	12	2	1.51	.61	28	4.1	4.6	2.5	3.7	55.9	54.2	57.5	55.9	74.5	48.7	70.8	64.7	14	11	6	7	0	0	1	
Sept...	16	18	16	4	12	8	7	7	2	2.78	.80	16, 17	4.7	5.8	3.1	4.4	49.0	50.3	51.1	50.1	78.4	58.4	73.8	70.2	10	17	8	11	0	0	0	September 9, a killing frost, the first frost of the season.
Oct....	25	7	22	6	15	5	9	2	2	3.68	.78	28, 29	7.1	8.8	7.0	7.5	41.4	41.7	41.6	41.6	77.1	61.4	70.8	69.8	2	12	17	15	0	0	0	
Nov...	8	4	4	1	27	14	23	9	0	3.03	1.30	21	6.4	6.4	5.3	6.0	32.0	31.7	31.3	31.7	70.3	54.4	63.7	62.8	8	7	15	10	1	8	0	
Dec...	9	2	6	2	15	27	18	14	0	1.90	.48	23, 24	7.2	7.2	5.6	6.7	23.7	24.5	24.4	24.2	76.8	64.2	73.4	71.5	5	12	14	13	9	21	0	
Sums..	131	101	123	89	182	205	208	93	18	34.24	......	......	71.5	80.4	60.6	70.9	441.2	450.9	457.3	449.9	872.8	677.1	833.9	794.7	78	153	134	136	40	114	3	
	Percentages.																								Percentages.							
Means.	12.0	9.2	11.2	3.6	16.6	18.7	19.0	8.5	1.2	......	......	......	6.0	6.7	5.0	5.9	36.8	37.6	38.1	37.5	72.7	56.4	69.5	66.2	21.4	41.9	36.7	37.3	11.0	31.2	.08	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.34 a. m., 2.34 p. m., and 10.34 p. m., local time.

Correction for instrumental error of barometer used: From 6.34 a. m., January 1, to 10.34 p. m., December 31, inclusive, —.012 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.740; February, 0.740; March, 0.730; April 0.710; May, 0.680; June, 0.680; July, 0.670; August, 0.670; September, 0.680; October, 0.700; November, 0.730; December, 0.740.

ALLEN BUELL,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

TUCSON, ARIZ.

[Latitude, 32° 14′ N.; longitude, 110° 53′ W. Magnetic variation, 13° E. Elevation of barometer above sea-level, 2,369 feet. Elevation of exposed thermometer above ground, 6 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	27.656	27.639	27.646	27.647	27.952	8	27.358	19	.594	36.6	57.5	46.3	46.8	71	25, 31	18	21	53	61.3	34.0	774	830	1,036	2,640	18	W.	19
Feb.[1]	27.589	27.586	27.601	27.592	28.046	17	27.256	2	.790	43.3	60.7	51.9	52.0	76	1	23	4	53	64.5	39.8	1,189	1,387	1,712	4,288	36	E.	18
Mar	27.554	27.541	27.542	27.546	27.724	1	27.360	22	.364	50.6	70.8	60.2	60.5	87	26	41	{20, 23} {24, 25}	46	74.0	47.5	692	803	1,195	2,690	24	E.	3
Apr	27.485	27.468	27.468	27.574	27.874	15	27.202	23	.672	48.4	76.2	64.2	62.9	92	16	32	15	60	81.2	45.7	769	1,057	1,582	3,408	21	E.	15
May	27.501	27.477	27.469	27.482	27.672	19	27.340	16	.332	55.3	85.2	72.0	70.8	105	27	44	8, 9	61	90.9	52.7	631	1,075	1,509	3,215	21	E.	16
June[2]	27.473	27.441	27.421	27.445	27.600	2	27.261	8	.339	64.2	96.6	82.8	81.2	107	4	55	2	52	101.8	61.8	297	386	716	1,399	14	SW.	15
July																											
Aug																											
Sept																											
Oct																											
Nov																											
Dec																											
Sums																											
																					Averages.						
Means																											

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[1] One 7 a. m. observation missed.

[2] Station closed June 15.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	3	3	6	24	25	6	6	16	4	1.27	.84	3	2.8	3.6	2.5	3.0	29.7	30.4	34.1	31.4	76.1	38.4	63.5	59.3	17	11	3	6	0	11	0	
Feb	3	1	21	11	19	3	7	12	6	.51	.33	12, 13	3.8	5.7	3.8	4.1	31.7	32.9	34.1	32.9	66.6	37.0	52.6	52.1	12	10	5	6	0	6	0	
Mar	2	0	12	20	12	12	6	14	15	1.14	.49	3	3.3	5.6	4.5	4.5	43.0	40.9	43.5	42.5	76.1	35.8	56.3	56.1	8	18	5	6	0	0	0	
Apr	2	1	6	14	15	17	18	13	4	(1)	(1)	4	0.9	2.0	1.2	1.4	29.9	25.2	29.5	28.2	51.4	16.4	29.5	32.4	26	4	0	0	0	0	1	
May	1	0	8	13	21	18	11	11	10	.35	.35	16	1.5	1.9	1.1	1.5	34.7	33.1	35.1	34.3	47.2	17.1	28.0	30.8	24	6	1	1	0	0	17	
June	0	0	3	5	7	9	12	3	6	.00	.00	......	0.3	0.8	0.2	0.4	40.3	38.7	41.5	40.2	42.5	14.1	24.3	27.0	14	1	0	0	0	0	15	
July																																
Aug																																
Sept																																
Oct																																
Nov																																
Dec																																
Sums																																
	Percentages.																								Percentages.							
Means																																

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[1] Inappreciable.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.44 a. m., 12.44 p. m., and 8.44 p. m., local time.

Correction for instrumental error of barometer used: From 4.44 a. m., January 1, 1883, to 8.44 p. m., June 15, 1883, inclusive, +.012 inch.

The barometric observations may be reduced to sea level by adding the following constants for the various months: January, 2.500; February, 2.480; March, 2.460; April, 2.390; May, 2.340; June, 2.300.

J. L. WHITESIDE,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

UNALASHKA, ALASKA.

[Latitude, 53° 53′ N.; longitude, 166° 32′ W. Magnetic variation, 18° 53′ E. Elevation of barometer above sea-level, 13 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 2 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month—		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan.[1]	......	29.340	29.364	......	30.536	29	28.277	22	2.259	......	34.4	34.7	......	[2]41	18	19	8	22	......	30.2	3,156	3,116	2,906	9,178	48	SE.	22
Feb.[1]	......	30.266	30.249	......	31.124	10	29.509	19	1.615	......	30.9	31.6	......	[2]43	6, 8	12	24	31	......	26.0	3,350	3,403	3,415	10,168	48	N., NW.	15 24 25
Mar.[1]	......	29.635	29.633	......	30.270	31	28.942	17	1.328	......	30.0	31.3	......	[2]44	27	5	10	39	......	24.7	3,468	3,941	4,074	11,483	48	SE.	23 27
Apr.[3]	29.810	29.728	29.721	29.753	30.372	13	28.544	9	1.828	30.7	33.4	33.8	32.6	53	11	18	13	35	40.4	27.4	2,918	3,132	3,287	9,337	48	SW., W.	8, 9
May	29.541	29.531	29.526	29.533	30.133	25	29.038	30	1.095	38.0	40.8	41.5	40.1	57	30	31	17, 18	26	47.2	34.7	2,430	2,276	3,069	7,775	38	SE.	20
June	29.930	29.941	29.954	29.942	30.408	30	29.199	1	1.209	43.5	46.8	47.4	45.9	64	30	34	6	30	53.2	40.3	2,221	2,065	2,984	7,270	28	S., SE., W.	20 21 25
July	29.986	29.980	29.960	29.975	30.620	15	29.544	17	1.076	48.1	50.3	51.3	49.9	72	4	40	10 31	32	56.8	43.7	1,980	1,913	2,720	6,613	32	SW.	29
Aug.	29.985	29.969	29.968	29.974	30.380	24	29.329	31	1.051	47.8	51.5	52.0	50.4	69	15	38	24	31	57.0	44.5	2,102	2,028	2,670	6,800	40	SE.	31
Sept.	29.631	29.617	29.605	29.618	30.127	12	28.569	29	1.558	44.5	46.8	46.6	46.0	60	5	33	26	27	50.6	41.1	3,204	3,212	3,714	10,130	54	SW.	14
Oct.	29.818	29.834	29.818	29.823	30.375	30	29.345	1	1.030	42.5	44.0	43.7	43.4	61	25	30	29	31	49.3	38.0	2,920	2,947	2,801	8,668	48	NW.	18
Nov.	29.953	29.944	29.955	29.951	30.775	23	28.733	1	2.042	36.1	36.8	36.1	36.3	54	3, 4, 6, 16	19	30	35	41.2	30.5	3,197	3,318	3,517	10,032	60	W.	1
Dec.	29.634	29.634	29.637	29.635	30.604	21	29.084	17	1.520	30.4	30.5	30.8	30.6	45	20	14	7	31	34.6	25.3	3,812	3,649	3,766	11,227	42	SE.	30
Sums	......	357.419	357.390	......	......	...	......	...	......	......	476.2	480.8	......	...	......	..	...	...	......	406.4	34,758	35,000	38,923	108,681	...	......	...
																					Averages.						
Means	......	29.785	29.783	......	31.124	*10	28.277	†22	......	......	39.7	40.1	......	72	‡4	5	§10	...	......	33.9	2,896.5	2,916.7	3,243.6	......	...	......	...

* February. † January. ‡ July. § March.

[1] Only two observations taken daily.

[2] Taken from exposed; maximum thermometer broken.

[3] Five 7 a. m. observations missed.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	0	2	2	26	15	13	3	1	0	17.78	4.53	10, 11	...	7.9	7.7	...	.....	29.9	30.5	.....	.....	83.8	84.5	.....	3	8	20	26	6	19	0	
Feb	14	0	0	7	7	5	2	17	4	2.88	.67	1, 2	...	7.9	7.7	...	.....	25.4	26.5	.....	.....	80.0	81.2	.....	3	8	17	16	16	22	0	
Mar	16	0	0	11	10	10	3	12	0	10.36	3.86	27	...	7.7	8.2	...	.....	23.6	24.9	.....	.....	76.9	77.0	.....	4	6	21	23	17	23	0	
Apr	8	7	2	10	7	23	4	24	0	5.77	1.57	30	9.3	9.5	8.9	9.2	26.1	27.3	27.4	26.9	82.5	78.1	77.1	79.2	0	1	24	24	2	26	0	
May	7	8	4	29	11	16	6	12	0	10.85	4.23	19, 20	8.7	8.5	8.3	8.5	32.5	34.0	33.9	33.5	80.6	77.5	75.1	77.7	1	6	24	24	0	2	0	
June	8	8	2	13	8	27	9	14	1	1.48	.34	15, 16	8.8	9.2	8.6	8.8	37.7	39.5	39.7	39.0	80.4	76.1	74.9	77.1	0	6	24	10	0	0	0	
July	5	8	1	5	3	53	5	9	4	1.70	1.04	14	8.7	9.2	8.8	8.9	40.9	43.8	44.8	43.0	76.1	78.6	77.3	77.3	0	6	25	10	0	0	0	
Aug	14	12	1	7	3	41	2	10	3	4.74	2.88	30, 31	8.3	7.8	8.5	8.2	42.7	46.3	46.7	45.2	83.3	82.8	82.5	82.9	2	5	24	17	0	0	0	
Sept	3	2	2	21	6	24	4	26	2	9.75	2.08	28, 29	8.7	8.9	9.0	8.9	38.5	39.9	39.7	39.4	79.0	77.4	77.5	78.2	0	4	26	26	0	0	0	
Oct	3	5	1	6	31	34	2	9	2	6.15	1.54	12	7.2	7.5	7.8	7.5	35.4	35.7	36.2	35.8	76.6	73.8	75.5	75.8	1	16	14	21	0	1	0	
Nov	17	1	10	3	16	28	6	7	2	5.02	1.75	1	8.4	8.6	9.3	8.7	30.0	29.2	28.8	29.3	78.4	73.5	74.7	75.5	0	6	24	22	3	18	0	
Dec	13	2	8	16	9	20	13	10	2	15.64	4.84	30, 31	8.2	7.6	7.9	7.9	24.4	24.3	24.5	24.4	78.2	77.1	76.5	77.8	0	10	21	21	11	21	0	
Sums	108	55	33	154	126	294	59	151	20	90.12	....	......	...	100.3	100.7	...	.....	398.9	403.1	.....	.....	935.1	933.8	.....	14	82	264	243	55	132	0	
	Percentages.																								Percentages.							
Means	10.8	5.5	3.3	15.4	12.6	29.4	5.9	15.1	2.0	....	....	......	...	8.4	8.4	...	.....	33.2	33.6	.....	....	77.9	77.8	.....	3.9	22.8	73.3	66.6	15.1	36.2	0	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 1.02 a. m., 9.02 a. m., and 5.02 p. m., local time.

Correction for instrumental error of barometer used: From 1.02 a. m., January 1, to 5.02 p. m., December 31, inclusive, —.013 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.02; February, 0.02; March, 0.02; April, 0.02; May, 0.02; June, 0.01; July, 0.01; August, 0.01; September, 0.01; October, 0.02; November, 0.02; December, 0.02.

SAML. APPLEGATE,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

VICKSBURG, MISS.

[Latitude, 32° 22′ N.; longitude, 90° 53′ W. Magnetic variation, 7° E. Elevation of barometer above sea-level, 244 feet. Elevation of exposed thermometer above ground, 32 feet. Elevation of rain-gauge above ground, 53 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	29.929	29.898	29.925	29.917	30.477	22	29.644	20	.833	42.8	53.0	47.3	47.7	73.5	26	20.5	21	53.0	55.2	39.3	1,572	1,505	1,621	4,698	28	SW.	30
Feb	30.005	29.979	30.001	29.995	30.482	27	29.557	23	.925	48.1	59.8	54.0	54.0	83.1	16	28.2	18	54.9	63.6	45.5	1,397	1,560	1,389	4,346	24	SW.	24
Mar	29.845	29.801	29.816	29.821	30.263	1	29.393	30	.870	50.4	64.6	56.4	57.1	78.9	31	35.0	20	43.9	66.8	48.1	1,326	1,661	1,631	4,818	24	NW.	19
Apr[1]	29.746	29.703	29.712	29.720	30.137	16	29.133	22	1.004	59.2	73.6	65.9	66.2	85.6	13	44.3	3	41.3	76.0	57.6	1,366	1,761	1,624	4,751	25	SE.	21
May	29.783	29.750	29.760	29.767	30.000	6	29.497	20	.503	64.5	78.9	69.5	71.0	91.0	15	47.0	22, 23	44.0	81.4	62.0	1,309	1,798	1,467	4,664	27	NW.	20
June	29.777	29.741	29.743	29.754	29.929	1	29.529	9	.400	74.0	88.7	77.4	80.0	95.2	24	64.5	1	30.7	90.2	71.5	1,064	1,322	1,276	3,662	25	SW.	2
July	29.862	29.826	29.823	29.837	30.036	18	29.680	12	.356	75.9	90.0	79.4	81.8	96.5	20	67.6	11	28.9	92.9	73.9	1,102	1,514	1,458	4,074	28	NW.	28
Aug	29.817	29.776	29.790	29.791	29.927	5	29.635	11	.292	72.6	91.1	77.1	80.3	96.0	20	65.0	8	31.0	92.5	71.0	977	1,256	1,378	3,611	33	NW.	3
Sept	29.827	29.781	29.798	29.802	29.982	27	29.663	22	.319	66.1	85.6	73.2	75.0	95.2	2, 4	54.3	23, 25	40.9	86.8	64.6	688	920	716	2,324	15	NW.	21
Oct	29.821	29.786	29.814	29.807	30.093	31	29.512	29	.581	65.4	79.4	69.0	71.3	93.4	6	43.6	26	49.8	80.6	63.0	1,287	1,548	1,326	4,161	23	W.	29
Nov	29.951	29.909	29.938	29.933	30.419	16	29.571	21	.848	52.8	66.1	57.1	58.7	82.4	10	28.3	16	54.1	67.8	48.8	1,226	1,553	1,172	3,951	26	N.	26
Dec	29.935	29.892	29.910	29.912	30.369	15	29.578	26	.791	48.0	60.7	54.2	54.3	77.0	5	29.8	16	47.2	63.1	46.8	1,549	1,403	1,351	4,363	24	NW.	27
Sums.....	358.298	357.851	358.030	358.059	......	...	......	...	....	719.8	891.5	780.5	797.4	...	...	....	.....	....	916.0	690.6	15,153	17,861	16,409	49,423	...	....	....
																					Averages.						
Means ...	29.858	29.821	29.836	29.838	30.482	*27	29.133	†22	......	60.0	74.3	65.0	66.4	96.5	‡20	20.5	*21	....	76.4	57.6	1,262.8	1,488.4	1,367.4	......	...	....	....

* February. † April. ‡ July.

[1] One 7 a. m. observation missed.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	8 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	14	11	8	16	7	9	1	20	7	7.65	2.26	13	5.9	5.9	5.4	5.7	36.2	39.1	37.0	37.4	78.5	62.6	69.5	70.2	9	7	15	14	0	7	0	Destructive tornadoes at several points during April.
Feb	23	6	9	10	13	8	1	12	7	6.70	2.88	23, 24	6.5	6.4	5.5	6.1	41.5	43.7	43.1	42.8	79.0	59.6	69.5	69.4	6	10	12	11	0	2	0	
Mar	13	10	7	12	18	12	8	13	5	3.19	.98	6, 7 24, 25	5.5	5.0	5.4	5.3	40.5	43.0	41.1	41.5	70.3	47.7	58.7	58.9	10	10	11	8	0	0	0	
Apr.[1]	18	9	7	15	17	7	4	5	7	6.99	4.26	6, 7	5.0	5.8	3.4	4.7	53.1	55.7	55.2	54.7	81.0	56.3	60.1	68.8	8	15	6	11	0	0	0	
May	13	8	4	25	17	9	4	7	6	2.16	1.27	10	4.2	5.0	2.2	3.8	58.6	59.0	58.7	58.8	81.9	62.6	69.5	68.0	11	19	1	6	0	0	1	
June	5	5	11	22	12	16	8	8	3	4.96	1.66	24, 25	5.3	5.2	2.2	4.2	69.9	71.6	70.5	70.7	87.1	57.9	79.8	74.9	10	18	2	13	0	0	14	
July	9	2	8	14	18	26	3	5	8	3.61	1.40	6, 7	3.4	4.5	2.3	3.4	70.7	71.9	71.0	71.2	84.5	56.4	76.0	72.3	13	17	1	9	0	0	28	
Aug	26	6	6	12	7	8	7	14	7	1.86	.86	8	2.8	2.7	1.3	2.1	67.3	70.6	68.9	68.9	83.9	51.6	76.3	70.6	22	9	0	4	0	0	24	
Sept	20	4	5	7	9	3	3	21	18	.84	.66	16	3.1	2.9	1.7	2.6	6.01	63.5	62.7	62.1	81.4	48.9	70.4	66.9	19	9	2	3	0	0	8	
Oct	19	4	7	14	22	7	4	5	11	4.84	1.57	19, 20	5.3	3.7	3.9	4.3	61.2	63.4	61.5	62.0	86.6	59.8	77.9	74.8	12	10	9	12	0	0	8	
Nov	25	6	5	25	12	8	0	1	8	11.53	4.35	10, 11	5.3	5.0	4.4	4.9	46.5	47.1	47.2	46.9	79.5	54.0	71.1	68.2	10	12	8	10	0	2	0	First frost Nov. 2d; first killing frost 16th.
Dec	22	4	5	25	15	5	3	8	6	9.42	4.51	30	5.8	6.0	4.6	5.5	41.5	46.6	44.6	44.2	78.9	61.8	71.6	70.8	10	9	12	11	0	3	0	
Sums	207	75	82	197	167	113	41	119	93	63.75	....	....	57.6	58.1	42.3	52.6	647.1	675.2	661.5	661.2	972.6	669.2	859.4	833.8	140	145	79	112	0	14	83	
	Percentages.																								Percentages.							
Means	18.9	6.9	7.5	18.0	15.3	10.3	3.7	10.9	8.5	.....	....	....	4.8	4.8	3.5	4.4	53.9	56.3	55.1	55.1	81.0	55.8	71.6	69.5	38.5	39.8	21.7	30.7	0	3.8	22.7	

[1] One 7 a. m. observation missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.05 a. m., 2.05 p. m., and 10.05 p. m., local time.

Correction for instrumental error of barometer used: From 6.05 a. m., January 1, to 10.05 p. m., December 31, inclusive, −.008 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.270; February, 0.270; March, 0.260; April, 0.260; May, 0.250; June, 0.250; July, 0.240; August, 0.240; September, 0.250; October, 0.260; November, 0,270; December, 0.270.

JAMES KENEALY,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

WASHAKIE, FORT, WYO.

[Latitude, 43° 1′ N.; longitude, 106° 54′ W. Magnetic variation, 17° E. Elevation of barometer above sea-level, 5,580 (B) feet. Elevation of exposed thermometer above ground, 5 feet. Elevation of rain-gauge above ground, 1 foot.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	24.344	24.342	24.359	24.318	24.750	7	23.961	12	0.789	7.8	24.8	9.8	14.1	51.0	10	−42.0	20	93.0	27.6	− 2.2	1,702	1,999	2,205	5,906	56	NW.	9
Feb	24.484	24.466	24.495	24.482	24.940	26	23.827	14	1.119	−9.9	17.0	−4.2	1.0	41.8	14	−53.5	5	95.3	20.9	−15.9	822	698	789	2,309	32	S.	15
Mar	24.461	24.426	24.421	24.430	24.937	2	24.028	20	0.909	21.8	46.0	30.6	32.6	67.0	22	− 9.8	1	76.8	49.8	17.2	1,467	1,054	1,952	4,473	47	NW.	19
Apr	24.352	24.310	24.338	24.333	24.825	24	23.750	20	1.069	29.9	47.7	36.6	38.1	71.0	19	10.8	1	60.2	52.8	26.9	1,262	1,380	2,103	4,747	36	W.	17
May	24.417	24.388	24.414	24.406	24.796	20	24.047	13	0.749	37.9	59.6	46.0	47.8	78.8	21	20.4	3	58.4	64.2	36.0	1,209	1,386	2,020	4,615	35	NW.	23
June[1]	24.477	24.445	24.479	24.467	24.637	8	24.101	10	0.536	42.4	63.1	49.8	51.8	78.0	10	34.2	13	43.8	69.9	40.1	494	676	1,021	2,191	27	W.	4
July																											
Aug																											
Sept																											
Oct																											
Nov																											
Dec																											
Sums																											
																					Averages.						
Means																											

[1] Station closed June 15.

B.—Elevation determined by barometer.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	3	7	7	11	9	9	28	14	5	.83	.48	31	3.6	6.2	2.0	3.9	6.6	10.9	6.6	[1]8.0	75.9	60.0	72.4	[1]69.4	10	19	2	6	15	29	0	
Feb	1	4	13	9	7	4	29	5	12	.65	.32	1	1.8	4.2	2.5	2.8	−3.4	8.8	−1.9	[2]1.2	82.4	68.0	79.1	[2]76.5	17	9	2	5	20	28	0	
Mar	4	6	11	19	9	8	28	8	0	.35	.13	18, 31	2.4	4.4	2.7	3.2	15.9	27.0	19.4	20.8	79.5	49.3	64.5	64.4	14	14	3	5	0	30	0	
Apr	1	7	8	14	11	6	19	19	5	3.32	1.35	23, 24	5.0	7.1	5.3	5.8	23.4	29.0	27.2	26.5	76.6	52.1	70.0	66.2	7	12	11	11	0	23	0	
May	6	12	3	17	5	20	16	13	1	3.57	1.12	8, 9	5.3	7.1	5.0	5.8	33.0	37.6	36.7	35.8	84.5	47.8	71.4	67.9	8	19	9	10	0	7	0	
June	0	3	6	7	1	11	7	8	2	1.07	.41	7, 8	0.2	6.7	3.7	5.5	38.1	40.9	40.2	39.7	85.1	46.3	72.4	67.9	2	10	3	9	0	0	0	
July																																
Aug																																
Sept																																
Oct																																
Nov																																
Dec																																
Sums																																
	Percentages.																								Percentages.							
Means																																

[1] Four 7 a. m., four 11 p. m., observations missed.

[2] Eight 7 a. m., six 11 p. m., observations missed.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.52 a. m., 12.52 p. m., and 8.52 p. m., local time.
Correction for instrumental error of barometer used: From 4.52 a. m., January 1, to 8.52 p. m., June 15, inclusive, +.004 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 5.790; February, 5.760; March, 5.720; April, 5.560; May, 5.480; June, 5.380.

T. M. AMBLER,
Private, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

WASHINGTON, D. C.

[Latitude, 38° 54′ N.; longitude, 77° 2′ W. Magnetic variation, 3° W. Elevation of barometer above sea-level, 106 feet. Elevation of exposed thermometer above ground, 44 feet. Elevation of rain-gauge above ground, 51 feet.]

Month	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.115	30.071	30.118	30.101	30.543	24	29.517	10	1.026	27.3	33.2	28.3	29.6	50.8	31	9.4	23	41.4	35.6	23.2	[1]689	[1]1,103	[1]883	[2]2,677	21	NW.	21
Feb	30.195	30.161	30.190	30.182	30.677	2	29.628	7	1.049	34.1	41.9	36.6	37.5	67.5	4	20.8	27	46.7	46.1	20.8	[3]810	[3]1,299	[3]1,083	[2]3,230	22	S.	3
Mar	29.945	29.852	29.921	29.906	30.451	8	29.275	10	1.176	31.9	44.8	36.1	37.6	70.3	19	14.3	8	56.0	48.3	28.5	[4]1,098	[4]1,692	[4]1,488	[2]4,323	23	NW.	20
Apr	29.946	29.876	29.935	29.919	30.333	14	29.503	23	.830	46.2	58.0	48.6	50.9	76.2	28	25.8	1	50.4	61.0	42.1	867	1,577	1,362	3,826	22	S.	5, 19
May ...	29.911	29.835	29.873	29.873	30.231	1	29.237	21	.994	58.1	72.4	60.3	63.6	90.2	8	42.6	1	47.6	74.8	52.6	1,000	1,642	1,345	3,987	22	S., SW.	10, 26
June ...	29.915	29.858	29.897	29.890	30.364	2	29.612	11	.742	70.3	82.1	70.8	74.4	92.0	10	51.2	2	40.8	84.8	64.2	627	1,279	1,008	2,914	16	SE., NW.	3, 7
July ...	29.941	29.890	29.919	29.917	30.121	21	29.604	24	.517	73.0	84.9	72.4	76.8	97.1	7	61.9	20, 31	35.2	87.7	67.2	589	1,227	940	2,756	16	NW., SW.	5, 12
Aug ...	29.980	29.934	29.966	29.960	30.176	15	29.612	2	.564	67.3	80.3	68.7	72.1	93.6	20	55.4	31	38.2	82.4	62.7	501	1,278	749	2,528	13	NW.	23
Sept ...	30.017	29.949	29.976	29.981	30.360	10	29.512	24	.848	59.8	73.0	62.6	65.1	87.0	17	43.6	10	43.4	74.8	56.2	733	1,296	922	2,951	17	NE.	12
Oct.....	30.090	30.029	30.072	30.064	30.529	16	29.407	29	1.122	52.1	63.8	54.9	56.9	84.0	14	36.2	17	47.8	65.5	49.3	859	1,299	930	3,088	27	W.	30
Nov....	30.119	30.055	30.091	30.088	30.564	17	29.691	9	.873	41.6	53.7	46.3	47.2	72.0	10	20.8	16, 17	51.2	56.2	39.4	[1]902	[1]1,344	[1]933	[2]3,181	23	NW.	12, 14
Dec	30.054	30.010	30.052	30.039	30.518	23	29.487	27	1.031	32.7	41.9	36.0	36.9	60.1	5	15.1	24	45.0	44.5	29.5	876	1,401	926	3,203	24	NW.	27
Sums..	360.228	359.520	360.010	359.920	......	....	......	....	......	594.4	730.0	621.6	648.6	....	....	....	....	......	761.7	544.7	9,601	16,437	12,569	38,684	....	....	......
																					Averages.						
Means.	30.019	29.960	30.001	29.993	30.677	*2	29.237	†21	.....	49.5	60.8	51.8	54.0	97.1	‡7	9.4	§23	......	63.5	45.4	800.1	1,369.8	1,047.4	.....	....	....	......

[1] Self-register lost 2 miles. [2] By dial. [3] Self-register lost 28 miles. [4] Self-register lost 45 miles. * February. † May. ‡ July. § January.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
											Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan....	17	16	6	5	12	5	2	11	19	3.15	.65	20, 21	7.4	7.3	6.4	7.0	23.9	23.9	25.0	24.8	87.3	69.9	87.6	81.6	8	13	15	20	10	28	0	
Feb ...	8	7	5	4	12	6	4	21	17	5.08	1.27	24, 25	6.0	7.0	4.2	5.7	28.1	29.2	30.2	29.2	79.2	62.9	78.4	73.5	5	14	9	14	0	21	0	
Mar ...	8	7	2	9	12	9	3	35	8	3.27	1.53	10	5.5	4.5	4.2	4.7	25.6	26.3	26.7	26.2	77.4	51.0	69.2	65.9	6	19	6	7	0	22	0	Last killing frost March 1.
Apr ...	17	9	7	8	20	4	2	19	4	4.69	1.58	22, 23	5.9	6.5	5.6	6.0	40.7	43.3	42.8	42.1	81.7	60.4	79.9	74.0	6	17	7	14	0	2	0	Last light frost April 30.
May ...	11	13	7	4	17	6	8	19	8	2.50	.99	21	5.1	4.7	4.8	4.9	49.2	50.3	51.1	50.2	73.5	48.5	72.8	64.9	9	14	8	8	0	0	1	
June ..	8	4	5	8	22	15	5	8	15	8.55	1.70	26, 27	4.2	5.0	5.6	4.9	63.0	62.4	63.4	62.9	78.6	53.5	78.2	70.1	8	16	6	16	0	0	5	
July ...	8	5	0	1	25	16	12	13	13	4.73	1.00	24	3.8	5.3	3.8	4.3	64.7	64.5	65.2	64.8	75.9	52.2	78.6	68.9	11	16	4	10	0	0	12	
Aug ...	20	12	9	3	11	6	5	7	20	3.30	1.34	23	3.3	4.5	3.1	3.6	59.6	58.1	61.2	59.6	76.8	49.3	77.6	67.9	13	14	4	6	0	0	6	
Sept ...	15	23	2	4	16	4	4	6	16	4.33	1.08	24	5.8	5.8	5.0	5.5	54.3	56.9	56.5	55.9	82.4	59.7	80.9	74.3	10	11	9	8	0	0	0	
Oct	19	12	5	5	15	5	3	14	15	2.63	.77	2	7.1	6.4	6.3	6.6	47.3	50.8	48.8	49.0	84.3	65.3	81.3	77.0	4	12	15	12	0	0	0	First light frost October 17.
Nov ...	8	5	2	4	25	5	4	16	21	1.19	.35	26	4.4	5.4	4.2	4.7	34.7	39.3	38.8	37.6	77.5	60.1	75.5	71.0	12	8	10	9	0	9	0	First killing frost November 15.
Dec....	9	10	4	2	15	10	6	21	16	2.89	1.08	19	5.6	6.0	4.5	5.4	27.7	30.3	29.6	29.2	82.2	65.9	78.4	75.5	9	13	9	14	2	20	0	
Sums..	148	123	54	57	202	91	58	190	172	15.71	......	.....	64.1	68.4	57.7	63.3	518.9	535.3	538.8	531.0	956.8	698.7	938.4	864.6	96	167	102	138	12	102	24	
	Percentages.																								Percentages.							
Means.	13.5	11.2	4.9	5.2	18.5	8.3	5.3	17.4	15.7	.....	......	....	5.3	5.7	4.8	5.3	43.2	44.6	44.9	44.2	79.7	58.2	78.2	72.0	26.3	45.8	27.9	37.8	3.3	28.0	6.6	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 7 a. m., 3 p. m., and 11 p. m., local time.

Correction for instrumental error of barometer used: From 7 a. m., January 1, to 11 p. m., December 31, inclusive, +.002 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.120; February, 0.120; March, 0.120; April, 0.120; May, 0.110; June, 0.110; July, 0.110; August, 0.110; September, 0.110; October, 0.120; November, 0.120; December, 0.120.

T. B. HARRISON,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December* 31, 1883—Continued.

WEST LAS ANIMAS, COLO.

[Latitude, 38° 4′ N.; longitude, 103° 12′ W. Magnetic variation, 13° 9′ E. Elevation of barometer above sea-level, 3,899 feet. Elevation of exposed thermometer above ground, 22 feet. Elevation of rain-gauge above ground, 7 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.			Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.							7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	26.034	25.970	26.035	26.013	26.393	8	25.484	12	.909	8.4	33.9	18.8	20.4	61.5	24	—21.5	19, 20	83.0	39.1	4.4	1,754	2,153	2,640	6,547	46	N.	29
Feb	26.134	26.079	26.128	26.114	26.635	17	25.296	15	1.339	10.9	34.1	21.7	22.2	64.0	28	—22.5	4	86.5	40.1	7.0	1,875	1,715	2,400	5,990	44	SW.	15
Mar	26.051	26.012	26.029	26.031	26.608	2	25.626	30	.982	27.1	54.2	40.1	40.5	74.5	22	10.0	19	64.5	59.8	24.2	1,756	1,923	2,438	6,117	38	NE.	18
Apr	25.802	25.841	25.864	25.866	26.496	24	24.935	21	1.561	35.8	62.7	48.8	49.1	82.5	17	19.0	2	63.5	66.8	33.4	2,170	2,656	3,474	8,300	54	NW.	22
May	25.967	25.904	25.949	25.940	26.312	20	25.287	17	1.025	47.3	71.8	58.2	59.1	91.0	31	30.5	4	60.5	76.5	44.7	2,526	2,805	3,826	9,247	47	SW.	8
June	26.047	26.005	26.016	26.023	26.257	29	25.674	11	.583	58.2	80.8	68.3	69.1	98.5	22	40.5	13	58.0	85.9	55.0	1,646	1,946	2,840	6,432	42	N.	3
July	26.082	26.031	26.049	26.054	26.286	27	25.786	15	.500	63.8	89.5	75.4	76.2	104.0	19	55.5	18	48.5	93.3	61.7	1,822	1,855	2,832	6,509	36	NW.	13
Aug	26.137	26.104	26.117	26.119	26.313	28	25.848	21	.465	61.6	85.5	72.9	73.3	99.5	29	52.0	23	47.5	89.7	60.5	1,550	1,579	2,454	5,583	32	N.	22
Sept.....	26.155	26.108	26.129	26.131	26.554	20	25.780	13	.774	51.4	77.6	61.5	63.5	97.5	1	35.0	25	62.5	81.1	49.1	1,528	1,837	2,538	5,963	44	N.	13
Oct......	26.019	25.963	26.013	25.998	26.507	31	25.567	17	.940	39.1	61.2	48.0	49.4	86.5	7	19.0	25	67.5	65.5	38.0	1,895	2,170	2,894	6,959	36	NW.	28
Nov	26.061	25.995	26.024	26.027	26.550	11	25.587	25	.963	24.7	56.8	35.9	39.1	77.0	2, 4	8.0	26	69.0	61.2	21.7	1,322	1,430	1,755	4,507	36	N.	5
Dec.....	26.049	26.025	26.074	26.049	26.567	14	25.544	6	1.023	25.2	43.6	29.4	32.7	68.0	23	— 2.5	31	70.5	48.9	20.5	1,544	2,331	1,960	5,885	49	NW.	6
Sums..	312.628	312.037	312.427	312.365	......	...	......	...	......	453.5	751.7	579.0	594.6	....	....	......	.....	....	807.9	418.2	21,448	24,400	32,051	77,989	....	....	....
																					Averages.						
Means	26.052	26.003	26.036	26.030	26.635	*17	24.935	†21	......	37.8	62.6	48.2	49.5	104.0	‡19	—22.5	*4	....	67.3	34.8	1,787.3	2,040.8	2,670.9	......	....	....	....

* February. † April. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.		Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).				Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
											Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.								
1883.										In.	In.						°	°	°	°												
Jan	16	5	18	2	3	12	20	13	4	.14	.08	31	3.5	4.5	4.5	4.2	3.2	11.0	9.1	7.8	79.9	44.5	66.8	63.7	12	11	8	3	9	31	0	
Feb	14	12	14	8	4	7	16	12	2	.52	.21	24	2.2	3.8	2.3	2.8	5.2	11.0	11.4	9.2	79.5	46.2	68.0	64.6	19	5	4	4	9	27	0	
Mar	8	17	27	3	7	1	20	1	9	.15	.15	19	4.2	4.8	3.5	4.2	18.3	19.7	19.6	19.2	69.8	28.8	47.0	48.5	12	14	5	1	0	28	0	
Apr	11	10	9	7	8	10	21	9	5	.93	.34	14	5.7	5.9	4.1	5.2	24.0	20.4	22.9	22.4	64.1	25.4	43.5	44.3	7	17	6	3	0	12	0	
May	13	6	19	8	12	12	12	10	1	1.50	.65	29	4.9	6.0	4.6	5.2	36.8	24.8	33.4	31.7	70.6	22.5	44.8	46.0	7	18	6	10	0	1	2	
June	8	9	24	15	8	5	14	6	1	2.63	1.07	8, 9	3.8	3.5	3.2	3.3	48.9	41.1	46.8	45.6	72.4	29.8	49.7	50.6	15	12	3	6	0	0	12	
July	13	8	18	6	14	11	18	5	0	.67	.29	30	4.5	5.8	5.4	5.2	49.3	40.4	47.2	45.6	61.5	20.8	41.6	41.8	6	10	9	12	0	0	22	
Aug	6	10	27	8	9	7	12	7	7	.65	.28	2, 3	3.8	3.9	4.5	4.1	51.6	49.8	51.4	51.9	79.2	32.3	52.7	54.7	11	15	5	8	0	0	17	
Sept	12	10	19	9	6	10	12	9	3	1.35	.56	5	4.0	3.4	4.0	3.8	43.1	39.5	44.4	42.3	76.2	28.0	56.5	53.6	14	12	4	10	0	0	1	
Oct	7	16	20	10	6	9	17	8	0	.69	.64	3, 4	4.5	3.2	3.4	3.7	32.5	27.3	34.2	31.3	78.9	34.6	62.6	58.7	16	9	6	5	0	10	0	
Nov	7	12	9	8	11	7	29	7	0	.21	.21	5	1.8	2.2	1.6	1.9	17.2	14.0	17.2	16.1	74.0	20.8	48.6	47.8	19	11	0	1	0	27	0	
Dec	9	9	12	2	5	9	33	10	4	1.68	1.41	5	4.5	5.0	4.0	4.5	20.3	19.1	20.3	19.9	62.3	45.3	72.1	66.6	8	17	6	6	3	30	0	
Sums	124	124	216	81	93	100	224	97	36	11.12	.....	.....	46.9	52.0	45.1	48.1	353.4	318.1	357.9	343.0	888.4	379.0	653.9	640.4	146	157	62	69	21	106	54	
	Percentages.																								Percentages.							
Means	11.3	11.3	19.7	7.4	8.5	9.1	20.5	8.9	3.3	.....	.....	.....	3.9	4.3	3.8	4.0	29.4	26.5	29.8	28.6	74.0	31.6	54.5	53.4	40.0	43.0	17.0	18.9	5.8	45.5	14.8	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.15 a. m., 1.15 p. m., and 9.15 p. m., local time.

Corrections for instrumental errors of barometer used: From 5.15 a. m., January 1, to 9.15 a. m., June 27, inclusive, +.002 inch; from 1.05 p. m., June 27, to 9.05 p. m., December 31, inclusive, —.002 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months; January, 4.13; February, 4.12; March, 4.07; April, 3.95; May, 3.85; June, 3.77; July, 3.75; August, 3.74; September, 3.82; October, 3.93; November, 4.11; December, 4.15.

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APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

WILMINGTON, N. C.

[Latitude, 34° 14′ N.; longitude, 77° 57′ W. Magnetic variation, 15′ W. Elevation of barometer above sea-level, 52 feet. Elevation of exposed thermometer above ground, 28 feet. Elevation of rain-gauge above ground, 44 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.					Mean maximum.	Mean minimum.	Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.			11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	30.154	30.103	30.143	30.133	30.600	23	29.464	9	1.136	48.8	52.2	45.5	47.2	68.0	31	23.0	12, 13	45.0	54.3	39.2	1,347	1,595	1,507	4,449	26	NW.	21
Feb	30.260	30.198	30.250	30.236	30.559	2	29.887	16	.672	50.6	61.2	52.2	54.7	76.0	4 5 17	33.5	20	42.5	64.1	45.2	1,231	2,216	1,697	5,144	27	SW.	11
Mar	30.008	29.932	29.968	29.969	30.375	1	29.517	26	.858	45.5	57.2	49.7	50.8	72.5	30	30.0	23	42.5	60.5	40.7	1,680	2,279	2,360	6,319	29	SW.	7
Apr	29.985	29.932	29.986	29.968	30.333	4	29.490	23	.843	58.0	66.7	59.1	61.3	81.0	6	39.5	1	41.5	69.8	53.3	1,664	2,213	1,965	5,842	29	W.	23
May	29.985	29.918	29.957	29.953	30.233	18	29.366	21	.867	64.9	75.8	66.4	69.0	84.0	13 20	48.0	1	36.0	77.9	60.3	1,857	2,347	2,026	5,730	26	SW.	15
June	29.993	29.914	29.977	29.971	30.230	4	29.751	26	.479	74.9	81.6	75.1	77.2	93.0	18	62.0	2, 16	31.0	84.6	70.6	1,149	1,905	1,989	5,043	38	N.	2
July	30.029	29.981	30.017	30.009	30.276	22	29.744	13	.532	78.5	87.4	78.5	81.5	97.0	24	68.5	20	28.5	89.8	74.2	833	1,687	1,666	4,186	28	N.	17
Aug	29.996	29.952	29.989	29.979	30.137	18	29.748	29	.389	74.4	84.8	75.6	78.3	96.5	24	62.0	31	34.5	86.5	71.6	909	1,701	1,402	4,012	18	SW.	16
Sept	29.997	29.946	29.979	29.974	30.217	27	29.362	11	.855	68.9	77.4	70.1	72.1	90.1	3	59.0	10	31.1	79.4	65.9	946	1,815	1,527	4,288	39	SE.	11
Oct	30.082	30.027	30.062	30.057	30.401	17	29.734	29	.667	62.0	72.1	64.0	66.0	90.0	3	48.0	25	42.0	74.2	59.2	1,306	1,941	1,640	4,887	27	SW.	29
Nov	30.193	30.124	30.162	30.160	30.569	17	29.868	14	.701	51.9	64.2	54.8	57.0	82.0	10	28.0	17	54.0	66.6	48.4	1,190	2,018	1,381	4,589	24	N.	27
Dec	30.142	30.082	30.126	30.117	30.386	7	29.661	27	.725	46.7	60.0	51.6	52.8	71.8	8	27.0	16	44.8	62.5	43.7	1,114	1,841	1,410	4,365	27	SW.	14
Sums..	360.824	360.139	360.616	360.526	......	..	......	...	......	720.1	840.6	742.6	767.9	....	....	....	.....	...	870.2	672.3	14,726	23,558	20,570	58,854	....	....	....
																					Averages.						
Means.	30.069	30.012	30.051	30.044	30.600	*23	29.362	†11	......	60.0	70.0	61.9	64.0	97.0	‡24	23.0	*12, 13	...	72.5	56.0	1,227.2	1,963.2	1,714.2	....	....	....	....

* January. † September. ‡ July.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In*						°	°	°	°												
Jan	16	18	7	7	11	10	7	16	1	6.33	1.65	9	7.8	7.2	6.5	7.2	40.2	42.6	40.7	41.2	87.3	72.3	84.8	81.3	3	13	15	16	0	5	0	
Feb	6	21	13	2	5	17	13	6	1	2.09	1.19	24, 25	5.4	6.5	4.8	5.6	45.4	45.7	46.1	45.7	81.5	60.5	80.3	74.1	8	8	12	10	0	0	0	
Mar	14	8	11	5	7	24	11	12	1	5.78	1.38	26	4.8	5.8	3.7	4.8	37.7	39.3	40.6	39.2	75.3	56.0	72.0	67.8	9	16	6	12	0	2	0	
Apr	7	13	11	14	8	23	4	9	1	5.01	2.25	22, 23	6.8	6.8	4.4	6.0	53.2	53.5	53.8	53.5	84.2	64.3	83.1	77.2	5	16	9	12	0	0	0	
May	14	11	4	6	7	31	12	7	1	4.79	1.57	15	4.5	4.9	2.7	4.0	57.1	56.3	59.3	57.6	77.2	53.4	78.6	69.7	12	14	5	7	0	0	0	
June.....	1	8	2	7	14	33	13	6	7	10.84	5.22	2	5.2	7.3	3.1	5.2	69.6	69.3	69.5	69.5	84.1	67.6	83.3	78.3	9	15	6	15	0	0	4	
July	3	7	8	15	15	27	13	4	1	4.71	0.93	4	4.6	5.8	3.0	4.5	72.7	72.0	71.7	72.1	82.6	61.0	80.2	74.6	11	16	4	11	0	0	14	
Aug	10	34	4	8	4	20	6	2	5	5.19	3.72	25, 26	5.0	6.7	2.7	4.8	69.5	68.3	69.5	69.1	85.2	59.0	82.0	75.4	10	14	7	11	0	0	8	
Sept	9	18	8	10	6	19	4	5	11	16.53	7.30	10, 11	6.0	6.8	4.0	5.6	65.2	66.1	66.1	65.8	87.8	71.6	87.7	82.4	6	13	11	14	0	0	1	
Oct	14	34	9	9	5	10	2	7	3	1.09	0.40	12, 13	6.2	6.8	4.4	5.8	57.8	59.8	59.1	58.9	86.1	67.1	84.5	79.2	8	12	11	8	0	0	0	
Nov	17	15	3	7	9	16	6	11	6	0.42	0.37	25	5.9	5.1	3.4	4.8	44.5	43.8	45.2	44.5	76.4	50.5	71.7	66.2	8	15	7	4	0	2	0	
Dec......	11	15	7	7	8	21	6	17	1	1.22	0.33	14	5.1	5.5	4.1	4.9	38.9	43.3	43.2	41.8	74.8	58.5	73.9	69.1	10	14	7	8	0	1	0	
Sums ..	122	202	87	97	99	251	96	102	39	64.00	....	......	67.3	75.2	46.8	63.2	651.8	660.0	664.8	658.9	982.5	741.8	961.6	895.3	99	166	100	128	0	10	27	
	Percentages.																								Percentages.							
Means .	11.1	18.4	7.9	8.9	9.0	22.9	8.8	9.3	3.6	.....	....	......	5.6	6.3	3.9	5.3	54.3	55.0	55.4	54.9	81.9	61.8	80.1	74.6	27.1	45.5	27.4	35.1	0	3	7.4	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 6.56 a. m., 2.56 p. m., and 10.56 p. m., local time.

Correction for instrumental error of barometer used: From 6.56 a. m., January 1, to 10.56 p. m., December 31, inclusive, +.012 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.060; February, 0.060; March, 0.060; April, 0.060; May, 0.050; June, 0.050; July, 0.050; August, 0.050; September, 0.050; October, 0.050; November, 0.060; December, 0.060.

L. H. ALBRECHT,
Sergeant, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

YANKTON, DAK.

[Latitude, 42° 54′ N.; longitude, 97° 28′ W. Magnetic variation, 12° 30′ E. Elevation of barometer above sea-level, 1,228 feet. Elevation of exposed thermometer above ground, 20 feet. Elevation of rain-gauge above ground, 28 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles.*			
Jan	28.813	28.798	28.842	28.818	29.223	3	28.109	12	1.114	2.6	18.1	6.5	7.4	44.5	29	−22.0	19	66.0	17.6	−2.6	1,681	1,743	1,921	5,345	52	NW.	13
Feb.[1]	28.927	28.919	28.908	28.918	29.409	17	28.174	15	1.235	10.5	28.0	18.1	17.2	50.0	28	−2.0	4	70.0	34.1	14.5	1,124	1,441	1,154	[3]3,719	41	NW.	16
Mar	28.760	28.787	28.771	28.773	29.409	2	28.086	17	1.323	23.6	35.7	29.5	29.5	70.0	17	4.0	19	66.0	41.1	20.9	1,440	2,099	2,187	5,726	37	NW.	9
Apr	28.555	28.556	28.561	28.557	29.150	24	27.942	21	1.208	40.1	55.1	47.6	47.6	78.0	20, 27	27.0	1, 11	51.0	59.1	37.7	2,144	2,509	2,585	7,238	55	NW.	14
May	28.628	28.628	28.608	28.621	28.996	11	27.840	18	1.156	47.0	59.1	52.0	52.7	89.0	6	28.0	5	61.0	62.5	44.4	2,158	2,813	2,981	7,952	46	E., N.	13, 20
June	28.651	28.655	28.645	28.651	28.841	24	28.284	11	.557	60.9	73.8	66.3	67.0	95.0	29, 30	39.0	3	56.0	78.6	57.3	2,043	2,184	2,238	6,465	45	SW.	15
July	28.699	28.637	28.677	28.688	28.976	17, 28	28.258	15	.718	65.9	78.4	71.3	71.9	103.0	1	52.0	17	51.0	83.1	63.3	1,538	1,787	1,646	4,971	29	W.	26
Aug	28.760	28.749	28.728	28.746	28.974	5	28.236	21	.738	63.6	76.5	71.7	70.6	92.0	21	48.0	3, 5, 23	44.0	80.5	61.6	2,029	2,013	1,984	[2]6,026	35	NW.	19
Sept.....	28.785	28.754	28.765	28.768	29.105	8	28.466	13	.639	51.4	68.7	56.9	59.0	89.1	6	36.6	8	52.5	70.8	49.5	1,697	2,442	2,247	6,386	40	N.	21
Oct	28.748	28.725	28.759	28.744	29.223	20	28.166	17	1.057	40.3	52.7	45.0	46.0	81.2	7	21.1	20	60.1	55.1	38.3	1,695	2,334	2,293	6,322	28	N., SE.	17, 29
Nov	28.738	28.688	28.713	28.713	29.318	28	28.222	25	1.096	27.0	45.0	32.3	34.8	66.8	2	2.6	15	64.2	48.6	21.8	1,716	2,497	2,227	6,440	39	N.	25
Dec	28.770	28.749	28.777	28.765	29.297	14	28.034	17	1.263	18.8	31.0	22.4	24.1	59.5	12	−12.9	27	72.4	35.4	14.2	1,981	2,364	2,355	6,700	38	N.	17
Sums..	344.837	344.695	344.754	344.762	......	......	......	...	.....	451.7	612.1	519.6	527.8	.....	.....	......	......	....	666.5	420.9	21,246	26,226	25,818	73,290	....	....	.....
																					Averages.						
Means.	28.736	28.725	28.730	28.730	29.409	*17, 2	27.840	†18	.....	37.6	51.0	43.3	44.0	103.0	‡1	−22.0	§19	....	55.5	35.1	1,770.5	2,185.5	2,151.5	......	....	....	.....

*February, March. †May. ‡July. §January.

[1] Nine 7 a. m., nine 3 p. m., nine 11 p. m. observations missed.

[2] For 20 days.

[3] For 19 days.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	13	8	4	5	8	8	5	33	9	1.06	.25	7, 8	4.1	5.2	4.8	4.7	−6.2	−0.7	−8.2	−3.4	64.5	54.8	64.8	61.4	7	19	5	14	24	31	0	
Feb......	9	2	1	4	8	5	7	11	10	.73	.26	13, 14	3.2	4.7	3.9	3.9	9.3	18.4	15.9	14.5	68.4	62.1	67.6	66.0	9	6	4	7	4	19	0	
Mar	20	6	15	9	7	5	7	11	13	1.42	.42	29, 30	4.5	5.3	5.3	5.0	13.9	21.9	19.5	18.4	65.4	57.9	65.8	63.0	12	8	11	8	5	29	0	
Apr	16	13	9	8	8	5	8	13	10	5.71	2.42	22, 23	5.0	5.3	3.8	4.7	28.9	35.3	34.9	33.0	64.6	50.4	62.7	59.2	7	20	3	12	0	8	0	
May	10	10	7	9	11	5	11	13	8	8.76	2.39	13, 14	4.7	6.0	5.2	5.3	38.6	42.0	43.1	41.2	72.9	56.7	73.1	67.6	8	11	12	15	0	1	0	
June.....	14	8	8	9	8	8	5	21	9	4.40	1.85	1, 2	4.2	4.4	1.5	3.4	53.5	56.3	57.4	55.7	77.1	55.6	73.5	68.7	15	14	1	9	0	0	3	
July.....	10	13	11	9	5	14	11	11	9	3.33	.92	22	4.9	4.7	3.3	4.3	58.6	62.6	63.0	61.4	78.3	60.3	75.8	71.5	10	17	4	10	0	0	7	
Aug	7	5	11	11	14	13	18	9	5	2.85	1.95	13, 14	3.2	3.5	3.3	3.3	56.4	62.5	63.8	60.9	77.8	63.3	76.7	72.6	15	11	5	8	0	0	2	
Sept.....	22	7	9	9	16	9	6	11	1	3.98	2.07	21	4.4	3.9	2.7	3.7	45.8	48.4	49.7	48.0	87.4	50.5	78.5	70.5	12	16	2	6	0	0	0	
Oct......	14	10	3	15	20	4	9	18	0	1.98	.54	17	6.5	6.4	4.9	5.9	36.6	37.1	38.0	37.2	87.1	68.6	77.9	74.5	6	16	9	12	0	5	0	
Nov	21	6	3	6	10	12	15	16	1	0.08	.08	5	2.5	4.3	2.0	2.9	21.8	23.2	23.9	23.0	80.8	45.1	71.9	65.9	17	12	1	1	3	25	0	
Dec	16	4	6	6	5	13	14	24	5	0.91	.51	6	4.2	5.1	4.2	4.5	13.2	15.5	14.9	14.5	78.9	55.5	73.5	69.3	12	13	6	5	11	28	0	
Sums ..	181	92	87	100	120	101	116	191	80	35.21	....	.....	51.4	58.8	44.9	51.6	370.4	422.5	420.9	404.4	898.2	670.8	861.8	810.2	130	163	63	107	47	146	12	
	Percentages.																								Percentages.							
Means .	16.9	8.6	8.1	9.4	11.2	9.5	10.9	17.9	7.5	.....	....	......	4.3	4.9	3.7	4.3	30.9	35.2	35.1	33.7	74.8	55.9	71.8	67.5	36.5	45.8	17.7	30.1	13.2	41.0	3.4	

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 5.38 a. m., 1.38 p. m., and 9.38 p. m., local time.

Correction for instrumental error of barometer used: From 5.38 a. m., January 1, to 9.38 p. m., December 31, inclusive, +.011 inch.

The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 1.420; February, 1.420; March, 1.390; April, 1.340; May, 1.280; June, 1.280; July, 1.270; August, 1.270; September, 1.290; October, 1.330; November, 1.380; December, 1.430.

E. H. THOMPSON,
Corporal, Signal Corps, U. S. A.

APPENDIX 76.—*Meteorological summary for the year ending December 31, 1883*—Continued.

YUMA, ARIZ.

[Latitude, 32° 45′ N.; longitude, 114° 36′ W. Magnetic variation, 13° 45′ E. Elevation of barometer above sea-level, 141 feet. Elevation of exposed thermometer above ground, 5 feet. Elevation of rain-gauge above ground, 21 feet.]

Month.	Barometer (corrected for temperature and instrumental error only).									Temperature.											Wind.						
	Washington time.									Washington time.				Self-registering thermometers.							Washington time.				Maximum hourly velocity during month.		
	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Highest.	Date.	Lowest.	Date.	Range.	7 a. m.	3 p. m.	11 p. m.	Monthly mean.	Maximum.	Date.	Minimum.	Date.	Absolute range.	Mean maximum.	Mean minimum.	11 p. m. to 7 a. m.	7 a. m. to 3 p. m.	3 p. m. to 11 p. m.	Total.	Miles.	Direction from—	Date.
1883.	*In.*	*In.*	*In.*	*In.*	*In.*		*In.*		*In.*	°	°	°	°	°		°		°	°	°	*Miles.*	*Miles.*	*Miles.*	*Miles*			
Jan	29.979	29.986	29.968	29.978	30.400	21	29.658	8	.742	44.5	59.9	50.8	51.7	79.0	30	22.5	20	56.5	63.7	40.7	795	1,319	1,321	3,435	26	N.	20
Feb	29.902	29.924	29.901	29.909	30.516	17	29.459	1	1.057	48.1	63.0	55.6	55.6	82.5	28	31.4	7	51.1	66.9	44.5	1,105	1,507	1,555	4,167	28	N.	16
Mar	29.799	29.814	29.782	29.798	29.985	19	29.589	29	.396	56.9	77.1	67.9	67.3	88.9	26	49.5	24	39.4	81.2	54.6	986	1,045	1,596	3,627	28	S.	29
Apr	29.736	29.749	29.719	29.735	30.216	14	29.401	23	.815	54.7	78.7	67.8	67.1	93.4	29	44.0	25	49.4	82.7	52.1	1,217	1,490	2,035	4,742	40	W.	12 20
May	29.706	29.715	29.683	29.701	29.950	19	29.519	29	.431	60.6	87.5	75.1	74.4	108.7	27	49.0	3	59.7	91.8	58.9	1,188	1,368	2,145	4,701	26	W.	12
June	29.623	29.636	29.581	29.613	29.832	7	29.401	8	.431	73.2	101.1	87.7	87.3	117.0	26	63.6	1	53.4	106.0	71.6	858	1,187	1,788	3,783	26	SE.	28
July	29.673	29.683	29.630	29.662	29.837	10	29.497	3	.340	81.5	102.7	92.0	92.0	110.9	1	74.5	16	36.4	106.8	80.3	1,164	1,714	2,150	5,028	41	SE.	30
Aug	29.694	29.706	29.664	29.688	29.845	28	29.519	2	.326	80.9	101.2	91.0	91.0	110.7	2	74.3	13	36.4	105.6	79.1	735	1,077	1,712	3,524	36	S.	28
Sept	29.661	29.673	29.640	29.658	29.820	21	29.443	18	.377	73.6	98.0	85.4	85.7	110.8	4	63.4	23	47.4	101.9	71.6	[1]449	[1]918	[1]1,168	[2]2,605	26	NE.	21
Oct	29.759	29.765	29.754	29.759	30.036	29	29.392	2	.644	57.0	77.4	65.8	66.7	90.5	14	41.4	28	49.1	80.8	55.0	683	937	1,157	2,777	22	W., NW.	7, 26
Nov.[3]	29.849	29.853	29.845	29.849	30.075	20	29.578	19	.473	52.7	72.3	59.2	61.4	87.5	2	37.1	21	50.4	74.9	49.1	751	1,448	1,085	3,284	31	NE.	12
Dec.[4]																											
Sums																											
																					Averages.						
Means																											

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[1] Seventy miles lost by self-register.

[2] By dial.

[3] One 7 a. m., one 3 p. m., and two 11 p. m. observations missed.

[4] No observations taken.

Month.	Winds at 7 a. m., 3 and 11 p. m., Washington time: Number of times observed blowing from—								Number of calms.	Rainfall or melted snow.			Washington time.												Number of days—							Remarks.
										Total amount.	Any 3 consecutive 8 hourly measurements.		Cloudiness (in tenths).				Dew-point.				Relative humidity (per cent.).											
	North.	Northeast.	East.	Southeast.	South.	Southwest.	West.	Northwest.			Largest amount.	Date.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	7 a. m.	3 p. m.	11 p. m.	Mean.	Clear.	Fair.	Cloudy.	.01 inch or more of water.	Maximum below 32°.	Minimum below 32°.	Maximum above 90°.	
1883.										*In.*	*In.*						°	°	°	°												
Jan	29	11	6	2	4	2	8	15	16	.96	.96	2, 3	2.2	2.8	2.2	2.4	30.7	31.1	33.5	31.8	60.9	35.8	54.4	50.4	21	7	3	2	0	8	0	Last frost February 7.
Feb	16	22	2	5	3	11	8	12	5	.68	.42	20	3.3	4.2	3.5	3.7	34.8	35.1	36.3	35.4	63.6	38.6	52.0	51.4	11	14	3	4	0	2	0	
Mar	4	13	2	13	11	11	13	23	3	(*)	(*)	3, 29	2.3	3.7	2.8	2.9	49.1	51.8	49.3	50.1	75.6	43.7	53.4	57.6	19	9	3	0	0	0	0	
Apr	8	5	3	6	10	21	15	19	3	(*)	(*)	4	0.6	2.2	1.4	1.4	44.0	43.9	43.0	43.9	69.7	30.4	43.6	47.9	24	6	0	0	0	0	4	
May	10	4	4	12	6	16	10	25	6	.00	.00	...	0.7	1.6	0.9	1.0	46.9	46.8	46.1	46.6	62.3	25.8	37.4	41.8	27	4	0	0	0	0	16	
June.....	3	7	5	19	5	21	10	8	12	.00	.00	....	0.4	0.7	0.3	0.5	63.5	65.8	63.9	65.1	72.4	33.0	49.3	51.6	29	1	0	0	0	0	30	
July	4	7	4	31	22	12	3	4	6	.31	.30	27	2.1	2.5	1.5	2.0	70.7	68.7	69.1	69.5	70.3	34.4	48.3	51.0	21	10	0	2	0	0	31	
Aug	3	5	3	19	19	20	3	5	16	.22	.20	28	2.5	2.6	2.0	2.4	69.6	66.0	66.5	67.4	69.3	33.5	46.5	49.8	23	5	3	3	0	0	31	
Sept	6	18	2	6	7	14	5	6	26	.13	.13	19	0.5	1.2	0.8	0.9	58.5	50.1	58.0	55.5	61.9	21.9	41.9	41.9	26	4	0	1	0	0	30	
Oct	5	13	3	7	3	14	13	17	18	.05	.05	27	1.7	2.5	0.8	1.7	45.1	43.1	46.0	44.7	66.5	31.2	49.6	49.1	23	8	0	1	0	0	1	
Nov.[3]	21	26	3	1	1	6	7	11	10	.00	.00	.....	1.5	1.2	1.5	1.4	32.4	30.1	35.0	32.5	48.7	21.9	41.8	37.5	23	4	1	0	0	0	0	
Dec.[4]	....	....	....	....	....	....	....	....	....	....	....	....	....	..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	...	....	
Sums ..	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	
	Percentages.																								Percentages.							
Means .	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	....	

* Inappreciable.

[3] One 7 a. m., one 3 p. m., and two 11 p. m. observations missed.

[4] No observations taken.

NOTE.—7 a. m., 3 p. m., and 11 p. m., Washington time, correspond with 4.30 a. m., 12.30 p. m., and 8.30 p. m., local time.
Correction for instrumental error of barometer used: From 4.30 a. m., January 1, to 8.30 p. m., November 29, inclusive, —.011 inch.
The barometric observations may be reduced to sea-level by adding the following constants for the various months: January, 0.150; February, 0.150; March, 0.150; April, 0.150; May, 0.150; June, 0.140; July, 0.140; August, 0.140; September, 0.140; October, 0.140; November, 0.150.

W. S. DELANO,
Private, Signal Corps, U. S. A.

APPENDIX 77.

Annual summary, 1882, *of international simultaneous observations.*

Stations.	Latitude.	Longitude.	Local time.	Altitude of barometer above sea.		Result of simultaneous observations for the year 1882.																			Av. cloudiness.	Total precipitation.	
						Mean barometer.				Mean temperature.		Mean relative humidity.	Wind.														
						Actual.		Reduced.					Direction.										Total movement.				
				Feet.	Meters.	Inches.	Millimeters.	Inches.	Millimeters.	Fahrenheit.	Centigrade.		N.	NW.	W.	SW.	S.	SE.	E.	NE.	Calm.	Blank.	Miles.	Kilometers.	0–10.	Inches.	Millimeters.
ALGERIAN.	° ′	° ′										P.ct															
Nemours	N. 35 06	W. 1 50	0. 00 m ...	13	4	...	...	30. 11	764. 8	70. 3	21. 3	81. 3	89	17	70	59	102	21	23	34	...	...	...	...	1. 5	7. 96	202. 2
Algiers	N. 36 47	E. 3 05	0. 20 p. m.	72	22	...	...	30. 09	764. 3	68. 5	20. 8	65. 3	60	57	99	38	9	3	15	82	2	...	...	...	2. 0	32. 79	832. 9
La Calle	N. 36 54	E. 8 26	0. 42 p. m.	36	11	...	...	30. 07	763. 3	70. 7	21. 5	70. 6	69	88	48	45	12	15	39	46	3	...	...	...	2. 9	31. 31	795. 3
Tunis	N. 36 42	E. 10 13	0. 49 p. m.	46	14	...	...	30. 07	763. 8	...	...	...	...	..	..	...	...	...	...	..	...	...	...	...	...	...	...
Saida	N. 34 51	E. 0 10	0. 09 p. m.	2, 844	867	...	...	30. 15	765. 8	...	...	...	...	.	..	...	...	...	...	...	...	...	...	...	..	...	...
Tebessa	N. 35 24	E. 8 06	0. 40 p. m.	2, 890	881	...	...	30. 15	765. 8	65. 9	18. 8	52. 4	79	73	68	59	24	35	14	10	3	...	...	...	2. 2	12. 91	327. 9
Goriville	N. 33 45	E. 1 10	0. 13 p. m.	4, 285	1, 306	...	...	...	...	69. 4	20. 8	27. 6	49	101	65	47	43	19	17	24	..	...	...	...	2. 8	8. 15	207. 0
Laghouat	N. 33 48	E. 2 53	0. 20 p. m.	2, 559	780	...	...	30. 18	766. 0	74. 2	23. 4	43. 7	48	26	77	33	47	32	64	37	1	...	...	...	1. 3	5. 73	145. 5
Biskra	N. 34 51	E. 5 41	0. 31 p. m.	410	125	...	...	30. 16	766. 1	78. 5	78. 5	33. 3	34	142	12	20	11	123	...	3	20	...	...	...	2. 6	4. 01	101. 9
AUSTRALIAN.																											
Melbourne	S. 37 50	E. 144 58	9. 47 p. m.	91	28	29. 90	759. 4	30. 00	762. 0	55. 8	13. 2	77. 3	65	26	48	45	73	72	16	14	6	...	...	...	5. 0	22. 12	561. 8
AUSTRO-HUNGARIAN.																											
Agram	N. 45 48	E. 15 53	1. 12 p. m.	536	163	29. 47	748. 5	30. 02	762. 5	58. 2	14. 6	62. 9	2	15	33	110	25	57	44	77	2	...	...	...	5. 3	38. 13	968. 5
Cracow	N. 50 04	E. 20 00	1. 28 p. m.	722	220	29. 23	742. 4	29. 99	761. 7	53. 3	11. 8	67. 7	24	29	117	71	15	5	63	41	...	...	...	...	7. 0	29. 48	748. 8
Eperies	N. 48 58	E. 21 15	1. 33 p. m	820	250	29. 11	739. 4	29. 98	761. 5	49. 3	9. 6	76. 7	78	35	3	..	99	19	1	2	128	...	...	...	7. 0	30. 65	778. 5
Gratz	N. 47 04	E. 15 28	1. 10 p. m.	1, 171	357	28. 76	730. 5	30. 01	762. 2	55. 1	12. 8	70. 7	14	61	41	69	93	36	33	14	4	...	...	...	5. 4	30. 70	932. 2
Hermannstadt	N. 45 47	E. 24 13	1. 45 p. m.	1, 352	412	28. 57	725. 7	30. 00	762. 0	60. 0	15. 6	61. 9	28	135	32	12	37	104	14	3	...	...	...	...	5. 9	27. 24	691. 9
Kremsmünster	N. 48 03	E. 14 08	1. 04 p. m.	1, 260	384	28. 66	728. 0	30. 01	762. 2	51. 0	10. 6	75. 6	8	52	66	46	4	10	32	90	57	...	...	...	7. 0	47. 95	1, 217. 9
Lemberg	N. 49 50	E. 24 00	1. 44 p. m.	978	298	28. 99	736. 3	29. 90	761. 7	62. 6	11. 4	65. 9	9	90	8	61	48	68	23	68	...	...	...	...	6. 5	36. 68	931. 7
Pola	N. 44 52	E. 13 51	1. 04 p. m.	105	32	29. 90	759. 4	30. 01	762. 2	62. 1	16. 7	67. 1	9	12	88	37	38	74	78	81	8	...	...	...	5. 5	36. 61	920. 9
Szathmar	N. 47 46	E. 22 53	1. 39 p. m.	430	131	29. 51	749. 5	29. 98	761. 5	57. 9	14. 4	60. 9	30	47	44	66	44	63	46	24	1	...	...	...	5. 9	34. 17	867. 7
Szegedin	N. 46 15	E. 20 10	1. 29 p. m.	256	78	29. 71	754. 6	29. 99	761. 7	58. 4	14. 7	65. 5	24	51	30	39	101	29	4	11	70	6	...	...	5. 7	20. 95	582. 1

Trieste	N. 45 39	E. 13 46	1.04 p. m.	85	26	29.93	760.2	30.03	762.7	63.2	17.3	59.4	1	7	25	48	6	15	46	61	141	15	......	......	5.2	43.65	1,108.7
Vienna	N. 48 12	E. 16 22	1.14 p. m.	663	202	29.29	740.4	30.01	762.2	54.8	12.7	62.9	17	72	101	5	11	82	19	10	48	...	......	......	5.8	24.52	622.8
BRITISH.																											
Aberdeen	N. 57 10	W. 2 06	0.00 m.	88	27	29.71	754.6	29.81	757.2	49.3	9.6	73.6	11	34	63	41	88	76	33	19	...	...	......	......	6.3	34.75	882.6
Armagh	N. 54 21	W. 6 39	11.42 a. m.	207	63	29.61	752.1	29.85	758.2	48.7	9.3	80.3	23	32	34	103	81	36	22	19	...	...	......	......	6.7	......	......
Bidston	N. 53 24	W. 3 04	11.56 a. m.	197	60	....	....	29.87	758.7	49.9	9.9	77.9	10	19	99	89	20	53	49	26	...	...	......	......	7.1	......	......
Bolton	N. 53 35	W. 2 28	11.58 a. m.	500	152	29.34	745.2	29.87	758.7	50.7	10.4	77.3	17	32	52	86	75	44	81	27	...	1	......	......	8.0	......	......
Bradford	N. 53 48	W. 1 47	0.01 p. m.	366	111	29.46	748.3	29.86	758.4	51.0	10.6	73.6	2	44	48	102	6	53	12	41	...	57	......	......	6.9	39.62	1,006.3
Chatham	N. 51 25	E. 0 33	0.10 p. m	120	27	29.82	757.4	29.95	760.7	53.3	11.8	75.8	13	28	31	126	39	10	17	40	61	...	......	......	6.9	......	......
Falmouth	N. 50 09	W. 5 04	11.48 a. m.	211	64	29.74	755.4	29.97	761.2	53.8	12.1	76.0	16	54	67	66	54	51	38	17	...	2	......	......	7.1	......	......
Fort Napier	S. 30 00	E. 31 00	2.12 p. m	2,205	672	27.68	703.1	20.89	759.2	75.4	24.1	46.4	25	18	6	6	16	66	105	66	57	...	......	......	3.4	......	......
Free Town	N. 8 30	W. 13 14	11.15 a. m.	224	68	29.65	753.1	29.88	758.9	85.0	29.4	71.7	21	116	131	66	4	...	1	16	10	...	......	......	4.1	......	......
Gibraltar	N. 36 09	W. 5 21	11.47 a. m	50	15	30.09	764.3	30.14	765.5	68.8	20.4	81.2	1	36	112	44	1	12	109	49	1	...	......	......	3.3	......	......
Glasgow	N. 55 53	W. 4 17	11.51 a. m.	184	56	29.61	752.1	29.81	757.2	50.8	10.2	73.0	19	17	74	97	51	14	41	52	...	...	......	......	7.0	......	......
Greenwich	N. 51 29	W. 0 00	0.08 p. m.	159	48	29.76	755.9	29.94	760.5	54.3	12.4	73.5	38	30	87	111	68	24	24	30	3	...	......	......	7.4	......	......
Guernsey	N. 49 27	W. 2 41	11.58 a. m.	275	84	29.68	753.9	29.99	761.7	53.8	12.1	81.8	33	55	69	68	53	32	18	36	1	...	......	......	6.4	......	......
Kew	N. 51 28	W. 0 19	0.07 p. m	34	10	29.91	759.7	29.95	760.7	53.8	12.1	69.2	37	28	71	97	50	21	30	29	...	2	......	......	7.4	......	......
Leicester	N. 52 39	W. 1 08	0.04 p. m.	245	75	29.65	753.1	29.90	759.4	53.1	11.7	73.0	13	51	22	169	14	31	5	54	6	...	......	......	7.5	......	......
Malta	N. 36 00	E. 14 30	1.06 p. m	70	21	29.96	761.0	30.03	762.7	70.0	21.1	76.7	34	96	44	82	8	52	28	76	...	...	......	......	4.1	......	......
Nassau	N. 25 04	W. 77 22	6.58 a. m.	44	13	30.09	764.3	30.14	765.5	78.0	25.6	76.4	15	9	4	57	32	92	44	112	...	...	......	......	5.8	......	......
Oscott	N. 52 28	W. 1 55	0.00 m.	483	147	29.38	746.2	29.91	759.7	51.5	10.8	76.3	36	30	44	48	98	27	23	34	2	23	......	......	7.3	......	......
Oxford	N. 51 46	W. 1 17	0.03 p. m.	210	64	29.70	744.4	29.93	760.2	52.8	11.6	74.2	20	31	48	94	66	48	14	35	8	...	......	......	7.1	......	......
Plymouth	N. 50 22	W. 4 10	11.51 a. m.	69	21	29.88	758.9	29.95	760.7	54.8	12.7	78.8	13	51	44	96	52	48	32	23	12	...	......	......	7.3	......	......
Sandwich	N. 59 05	W. 3 20	11.54 a. m.	94	29	....	....	29.76	755.9	47.8	8.8	83.2	...	...	...	...	...	...	...	...	...	...	......	......	6.3	......	......
Scutari	N. 41 00	E. 29 03	2.04 a. m	60	18	29.92	360.0	29.98	761.5	64.5	18.1	60.8	53	5	8	96	44	5	4	132	14	4	......	......	4.9	......	......
Sheffield	N. 53 23	W. 1 28	0.02 a. m.	260	79	29.60	751.8	20.88	758.9	54.1	12.3	77.8	12	25	22	135	48	13	17	63	20	10	......	......	6.8	31.18	792.0
Silloth Rectory	N. 54 52	W. 3 22	11.54 a. m.	28	9	29.81	757.2	29.84	757.9	52.2	11.2	77.6	21	33	80	96	36	14	57	17	11	...	......	......	6.7	36.83	935.5
Stonyhurst	N. 53 51	W. 2 28	11.58 a. m.	361	110	....	....	29.89	759.2	50.8	10.4	73.7	23	19	107	82	49	19	31	33	...	2	......	......	8.0	......	......
Strathfield	N. 51 17	W. 0 54	0.04 p. m.	197	60	....	....	....	....	54.4	12.4	73.3	17	58	74	98	32	35	17	25	9	...	......	......	6.4	......	......
Truro	N. 50 16	W. 5 04	11.53 a. m.	43	13	29.92	760.0	29.95	760.7	58.0	14.4	73.3	18	93	42	91	31	39	32	19	...	...	......	......	7.0	......	......
Valencia	N. 51 55	W. 10 18	11.27 a. m.	23	7	29.87	758.7	29.90	759.4	53.5	11.9	76.8	22	49	66	81	51	57	28	10	1	...	......	......	7.5	......	......
CANADIAN.																											
Bathurst	N. 47 39	W. 65 43	7.45 a. m.	......	......	....	....	....	....	37.3	2.9	....	4	42	49	11	15	4	29	15	143	53	......	......	5.4	26.23	666.2
Charlottetown	N. 46 14	W. 63 10	7.55 a. m.	38	12	29.91	759.7	29.95	760.7	38.5	3.6	85.0	47	60	61	55	52	22	14	33	21	...	......	......	6.8	48.03	1,219.9
Chatham	N. 47 03	W. 65 29	7.45 a. m	56	17	29.93	760.2	29.99	761.7	34.8	1.3	87.6	32	62	89	80	37	13	13	38	51	...	......	......	5.8	42.84	1,088.1
Cornwall	N. 45 01	W. 74 43	7.09 a. m.	175	53	29.80	756.9	30.00	762.0	37.6	3.1	87.9	37	92	81	37	4	13	72	29	...	...	......	......	6.3	28.42	721.9
Dalhousie	N. 48 04	W. 66 22	7.32 a. m.	45	14	29.75	755.6	29.97	761.2	34.1	1.2	....	1	10	233	3	...	1	54	1	48	14	......	......	...	33.80	857.0
Father Point	N. 48 31	W. 68 28	7.34 a. m	20	6	29.96	761.0	29.98	761.5	35.3	1.8	86.0	34	47	84	66	23	7	8	61	35	...	......	......	7.1	31.61	802.9
Fredericton	N. 45 57	W. 66 38	7.41 a. m.	59	18	29.95	760.7	30.02	762.5	35.7	2.1	81.4	28	82	87	10	18	38	24	25	50	3	......	......	5.6	42.41	1,077.2
Granton	N. 43 12	W. 81 21	6.43 a. m.	1,015	309	28.93	734.8	30.04	763.0	39.8	4.3	...	29	47	32	32	21	28	25	21	180	...	......	......	5.7	25.03	635.8
Halifax	N. 44 30	W. 63 36	7.53 a. m.	122	37	29.86	758.4	29.98	761.5	40.2	4.6	87.4	42	68	97	38	33	25	22	28	12	...	......	......	5.5	61.22	1,555.0
Hamilton	N. 43 16	W. 79 53	6.49 a. m	338	103	29.63	752.6	30.03	762.7	43.1	6.2	80.4	4	6	43	178	13	6	27	84	4	...	......	......	6.0	32.36	821.9
Kingston	N. 44 14	W. 76 30	7.02 a. m.	307	94	20.70	754.4	30.04	763.0	40.8	4.9	82.5	52	49	60	53	35	9	16	82	9	...	......	......	7.1	31.23	793.2
Little Glace Bay	N. 46 12	W. 59 58	8.08 a. m	34	10	29.90	759.4	29.94	760.5	41.2	5.1	80.9	31	43	51	98	49	18	76	35	9	5	......	......	6.5	46.53	1,181.8
Montreal	N. 45 31	W. 73 33	7.13 a. m	187	57	29.81	757.2	30.02	762.5	38.7	3.7	79.7	47	33	108	34	36	19	32	45	11	...	......	......	6.3	37.71	957.8
Parry Sound	N. 45 19	W. 80 01	6.48 a. m.	635	194	29.33	745.0	30.04	763.0	37.7	3.2	82.1	58	26	46	20	36	44	67	46	22	...	......	......	5.4	34.95	887.7
Peterboro	N. 44 17	W. 78 18	6.54 a. m	688	210	29.30	744.2	30.06	763.5	41.5	5.3	80.3	11	51	51	13	7	16	23	42	150	1	......	......	5.0	22.89	581.4
Port Dover	N. 42 47	W. 80 18	6.47 a. m.	635	194	29.35	745.5	30.06	763.5	42.6	5.9	92.8	44	39	49	58	32	6	11	60	66	...	......	......	6.3	30.35	770.9

APPENDIX 77.—*Annual summary, 1882, of international simultaneous observations*—Continued.

Stations.	Latitude.	Longitude.	Local time.	Altitude of barometer above sea.		Result of simultaneous observations for the year 1882.																			Av. cloudiness.	Total precipitation.	
						Mean barometer.				Mean temperature.		Mean relative humidity.	Wind.														
						Actual.		Reduced.					Directions.									Blank.	Total movement.				
				Feet.	Meters.	Inches.	Millimeters.	Inches.	Millimeters.	Fahrenheit.	Centigrade.		N.	NW.	W.	SW.	S.	SE.	E.	NE.	Calm.		Miles.	Kilometers.	0-10.	Inches.	Millimeters.
CANADIAN—Cont'd.	° ′	° ′										P.ct															
Port Stanley	N. 42 40	W. 81 13	6.43 a. m.	552	180	29.40	746.7	30.05	763.3	42.1	5.6	86.7	45	32	115	26	14	23	69	34	7	...	......	......	5.8	31.95	811.5
Quebec	N. 46 48	W. 71 12	7.23 a. m.	293	89	29.69	754.1	30.02	762.5	34.7	1.5	86.3	42	54	84	8	...	10	64	54	49	...	......	......	5.8	50.90	1,292.8
Rockliffe	N. 46 10	W. 77 48	6.57 a. m.	418	127	29.56	750.8	30.04	763.0	33.6	0.9	82.8	20	89	57	2	5	32	45	5	110	...	......	......	5.8	38.91	988.3
St. Andrews	N. 43 04	W. 81 06	6.34 a. m.	47	14	29.93	760.2	29.99	761.7	37.9	3.3	83.8	53	87	32	28	20	33	19	50	43	...	......	......	4.4	40.02	1,016.5
St. John, N. B	N. 45 17	W. 66 03	7.44 a. m.	150	46	29.82	757.4	29.99	761.7	37.6	3.1	87.8	68	42	16	93	14	17	29	85	1	...	......	......	5.5	51.13	1,298.7
St. John's, N. F	N. 47 34	W. 52 54	8.36 a. m.	230?	70?	29.87	758.7	30.12	765.0	40.1	4.5	....	13	34	65	106	39	19	16	55	1	23	......	......	5.9	56.05	1,423.6
St. Pierre	N. 46 47	W. 56 08	8.24 a. m.	(?)	(?)	......	......	29.86	758.4	39.2	4.0	....	37	76	51	79	14	25	22	35	11	15	......	......	...	40.51	1,028.9
Saugeen	N. 44 30	W. 81 21	6.42 a. m.	656	200	29.30	744.2	30.03	762.7	40.8	4.9	86.5	29	30	29	56	48	61	32	47	33	...	......	......	6.3	28.18	715.8
Sydney	N. 46 08	W. 60 10	8.07 a. m.	37	11	29.89	759.2	29.95	760.7	38.3	3.5	84.7	50	48	46	105	34	8	21	20	33	...	......	......	6.8	61.65	1,565.9
Toronto	N. 43 39	W. 79 23	6.50 a. m.	350	107	29.67	753.6	30.06	763.5	42.3	5.7	81.0	64	49	80	35	16	14	38	48	21	...	......	......	6.5	23.98	609.1
Windsor	N. 44 59	W. 63 58	7.53 a. m.	87	226	29.87	758.7	29.96	761.0	41.3	5.2	86.8	50	39	59	73	35	20	31	27	25	6	......	......	5.7	......	......
Woodstock	N. 43 08	W. 80 47	6.48 a. m.	980	299	28.97	735.8	30.05	763.3	41.8	5.4	83.4	25	36	56	75	32	22	24	40	15	40	......	......	..	39.20	995.7
Yarmouth	N. 43 50	W. 66 02	7.44 a. m.	61	19	29.92	760.0	29.99	761.7	41.3	5.2	86.1	51	52	30	50	32	19	53	43	35	...	......	......	5.6	46.01	1,186.6
CAPE COLONY.																											
Cape St. Francis	S. 34 10	E. 24 50	1.47 p. m.	25	7	30.06	763.5	30.09	764.3	67.1	19.5	80.3	1	5	103	97	20	30	62	39	8	...	......	......	5.3	24.08	611.6
CHINESE.																											
Zi-Ka-Wei	N. 31 2	E. 121 26	8.14 p. m.	22	7	30.05	763.3	30.08	764.0	57.4	14.1	85.0	46	42	23	7	16	64	93	70	4	...	......	......	6.1	49.86	1,266.4
DANISH.																											
Copenhagen	N. 55 41	E. 12 36	0.58 p. m.	43	13	29.86	758.4	29.91	759.7	50.4	10.2	74.0	20	55	52	51	50	72	42	18	5	...	......	......	6.7	......	......
Fanöe	N. 55 27	E. 8 24	0.42 p. m.	20	6	29.87	758.7	29.89	759.2	50.2	10.1	82.3	8	31	93	78	42	43	35	30	5	...	......	......	6.8	......	......
Stykkisholm	N. 65 05	W. 22 46	10.37 a. m.	36	11	29.60	751.8	29.64	752.8	36.1	2.3	....	2	8	19	26	37	65	88	80	40	...	......	......	6.8	......	......
Thorshavn	N. 62 02	W. 6 44	11.41 a. m.	29	9	29.68	753.9	29.71	754.6	45.6	7.6	80.6	40	11	31	66	50	48	29	67	33	...	......	......	7.0	......	......
Vestervig	N. 56 47	E. 8 20	12.41 p. m.	82	25	29.77	756.1	29.86	758.4	48.9	9.4	82.2	10	40	54	68	48	29	43	45	28	...	......	......	6.1	......	......

FRENCH.																											
Agen	N. 44 12	E. 0 38	0.11 p.m.	604	184	29.47	748.5	30.12	765.0	59.3	15.2	75.0	15	46	54	29	22	65	4	9	121	...	...	...	...	28.53	724.6
Alençon	N. 48 26	E. 0 05	0.09 p.m.	476	145	29.49	749.0	30.04	763.0	54.0	12.2	84.1	48	19	20	104	101	17	11	49	...	...	...	...	...	30.09	764.3
Arras	N. 50 18	E. 2 46	0.19 p.m.	239	73	29.73	755.1	29.98	761.5	53.2	11.8	77.8	29	57	57	76	31	49	21	31	2	12	...	...	...	24.34	618.2
Avignon	N. 43 57	E. 4 48	0.27 p.m.	65	20	29.97	761.2	30.04	763.0	63.8	17.7	56.9	189	75	12	23	12	26	12	16	...	...	...	...	3.9	24.09	611.9
Bar-sur-Seine	N. 48 07	E. 4 22	0.25 p.m.	518	158	29.48	748.8	30.04	763.0	54.6	12.6	66.7	7	18	25	66	103	77	46	23	...	...	...	...	7.4	33.53	851.6
Beauvais	N. 49 26	E. 2 05	0.16 p.m.	246	75	29.75	755.6	30.02	762.5	55.2	12.9	68.2	18	35	63	62	45	52	58	32	...	...	...	...	7.3	31.37	796.8
Besançon	N. 47 14	E. 6 02	0.32 p.m.	846	258	...	...	30.01	762.2	56.6	13.7	74.9	30	4	6	53	135	22	12	103	...	...	...	...	..	54.13	1,374.9
Bordeaux	N. 44 50	E. 0 32	0.06 p.m.	243	74	29.81	757.2	30.07	763.8	59.6	15.3	63.9	31	51	64	73	35	53	35	23	...	...	...	...	6.9	41.08	1,043.4
Bourges	N. 47 10	E. 2 26	0.17 p.m.	510	156	29.49	749.0	30.05	763.3	57.1	13.9	66.7	60	23	59	81	56	23	25	28	10	...	...	...	..	32.29	820.2
Brest	N. 48 24	W. 4 30	11.50 a.m.	210	64	29.79	756.7	30.03	762.7	57.2	14.0	77.6	38	24	69	109	21	18	18	47	21	...	...	...	7.1	63.74?	1,619.0?
Caen	N. 49 11	W. 0 21	0.07 p.m.	69	21	29.92	760.0	29.99	761.7	55.3	12.9	71.5	18	40	63	75	81	41	18	22	7	..	...	...	5.9	31.27	794.2
Châlons-sur-Marne	N. 48 57	E. 4 21	0.25 p.m.	294	90	29.66	753.4	29.98	761.5	55.4	13.0	73.5	10	14	43	72	86	35	13	17	66	9	...	...	5.8	31.16	791.4
Charleville	N. 49 46	E. 4 49	0.27 p.m.	476	145	29.49	749.0	30.00	762.0	54.4	12.4	67.2	24	39	65	52	57	45	37	81	1	14	...	...	...	43.10	1,094.7
Clermont-Ferrand	N. 45 46	E. 3 05	0.20 p.m.	1,273	388	28.77	730.7	30.04	763.0	58.7	14.8	57.4	76	35	59	57	31	39	29	39	...	...	...	...	5.3	28.30	718.8
Cluny	N. 46 26	E. 4 39	0.27 p.m.	787	240	29.22	742.2	30.07	763.8	56.0	13.3	67.2	40	56	42	67	53	85	15	56	2	...	...	...	...	...	...
Commercy	N. 48 46	E. 5 35	0.30 p.m.	820	250	29.01	736.8	30.04	763.0	54.0	12.2	71.7	22	36	108	65	23	30	50	27	4	...	...	...	...	54.33	1,380.0
Gap	N. 44 33	E. 6 05	0.32 p.m.	2,424	735	27.50	698.5	30.01	762.2	58.6	14.8	51.2	86	26	25	20	57	18	16	27	81	9	...	...	...	30.95	786.1
Gréasque-du-Rhône	N. 43 25	E. 5 37	0.31 p.m.	1,056	322	28.91	734.3	30.02	762.5	64.0	17.8	49.3	32	188	32	57	42	45	17	12	...	...	...	...	4.3	23.71	602.2
Grenoble	N. 45 12	E. 5 43	0.31 p.m.	715	218	...	...	...	...	56.6	13.7	68.4	23	114	31	26	22	45	77	27	...	...	...	...	...	38.17	969.5
Lamballe	N. 48 28	W. 2 31	11.58 a.m.	252	77	...	...	...	...	55.7	13.2	75.3	29	64	69	47	56	45	22	32	...	1	...	...	...	29.38	746.2
Lescar	N. 43 20	W. 0 26	0.06 p.m.	525	160	29.51	749.5	30.08	764.0	62.0	16.7	63.2	27	33	146	57	16	7	45	82	2	...	...	...	...	51.30	1,303.0
Lorient	N. 47 45	W. 3 21	11.55 a.m.	86	26	29.95	760.7	30.05	763.3	58.2	14.6	76.0	25	23	70	95	45	29	21	41	16	...	...	...	7.0	41.91	1,064.5
Lyon	N. 45 41	E. 2 30	0.25 p.m.	981	299	29.01	736.8	30.07	763.8	55.8	13.2	64.6	69	62	23	9	74	60	40	28	...	...	...	...	...	30.34	770.6
Mans	N. 48 01	E. 0 12	0.09 p.m.	285	87	29.73	755.1	30.04	763.0	54.5	12.5	75.2	27	58	70	68	45	32	29	40	1	...	...	...	...	36.66	931.1
Marseille	N. 43 18	E. 5 23	0.29 p.m.	246	75	29.76	755.9	30.03	762.7	64.7	18.2	55.5	3	72	113	78	25	42	29	8	...	...	...	...	...	18.77	476.7
Montpellier	N. 43 37	E. 3 53	0.24 p.m.	118	36	29.91	759.7	30.04	763.0	64.4	18.0	65.0	65	79	54	25	49	34	18	33	8	...	...	...	2.6	15.70	398.8
Nancy	N. 48 42	E. 6 11	0.33 p.m.	725	221	29.23	742.4	30.02	762.5	53.8	12.1	70.0	48	45	58	89	96	16	..	13	...	...	...	...	...	35.54	902.7
Nantes	N. 47 13	W. 4 33	0.02 p.m.	134	41	29.91	759.7	30.07	763.8	58.6	14.8	68.8	36	28	52	100	48	27	32	42	...	...	...	...	7.8	39.00	990.6
Perpignan	N. 42 42	E. 2 53	0.19 p.m.	105	32	29.95	760.7	30.06	763.5	64.4	18.0	58.9	57	85	9	19	44	80	31	38	2	...	...	...	4.9	14.65	372.1
Pic-du-Midi	N. 42 56	W. 0 08	0.08 p.m.	9,380	2,859	21.27	540.2	...	...	32.8	0.4	...	9	55	56	124	31	31	17	40	2	...	...	...	...	81.00	2,057.4
Privas	N. 44 45	E. 4 36	0.26 p.m.	997	304	29.00	736.6	30.07	763.8	58.0	14.4	62.2	124	18	7	6	133	14	7	8	42	6	...	...	...	30.30	769.6
Puy-de-Dôme	N. 45 46	E. 2 58	0.20 p.m.	4,813	1,467	25.15	638.8	...	...	40.3	4.6	84.3	34	25	91	98	36	37	18	26	...	...	...	...	5.7	69.48	1,764.8
Rochefort	N. 45 56	W. 0 58	0.04 p.m.	29	9	30.04	763.0	30.07	763.8	59.5	15.3	89.3	11	19	72	98	55	35	16	48	16	...	...	...	6.1	60.69?	1,541.5?
Roche-sur-Yon	N. 46 40	W. 1 26	0.02 p.m.	198	60	29.84	757.9	30.05	763.3	57.4	14.1	74.3	29	53	60	82	40	27	37	...	...	...	...	...	5.6	46.13	1,171.7
Rodez	N. 44 21	E. 2 34	0.18 p.m.	2,050	625	27.94	709.7	30.08	764.0	54.6	12.6	67.5	15	103	69	32	12	32	65	18	19	...	...	...	...	36.41	924.8
Rouen	N. 49 26	E. 1 05	0.12 p.m.	39	12	29.96	761.0	30.01	762.2	55.4	13.0	72.8	24	38	46	102	52	37	38	28	...	...	...	...	6.3	40.98	1,040.9
Saint-Maur	N. 48 48	E. 2 21	0.17 p.m.	162	49	29.85	758.2	30.02	762.5	55.3	12.9	69.1	43	29	46	79	73	35	17	37	6	...	...	...	6.6	25.25	641.3
Toulouse	N. 43 37	E. 1 27	0.14 p.m.	636	194	29.41	747.0	30.13	765.3	61.2	16.2	66.9	83	74	81	27	11	102	19	18	...	...	...	...	4.8	31.94	811.3
Versailles	N. 48 48	E. 2 07	0.16 p.m.	445	136	29.52	749.8	30.02	762.5	54.5	12.5	69.0	45	32	81	91	85	23	19	38	1	...	...	...	...	25.98	659.9
GERMAN.																											
Bamberg	N. 49 54	E. 10 54	0.51 p.m.	787	240	29.16	740.7	30.01	762.2	53.2	11.8	64.9	10	55	67	68	83	39	18	25	46	4	...	...	5.8	32.44	824.0
Berlin	N. 52 30	E. 13 23	1.02 p.m.	164	50	29.78	756.4	29.96	761.0	54.3	12.4	64.1	29	53	45	89	26	67	26	28	2	...	...	...	7.1	30.10	764.5
Breslau	N. 51 07	E. 17 02	0.17 p.m.	482	147	29.48	748.8	30.01	762.2	53.1	11.7	62.8	20	42	96	48	85	62	35	18	9	...	...	...	6.7	20.40	518.2
Carlsruhe	N. 49 01	E. 8 25	0.42 p.m.	404	123	29.59	751.6	30.03	762.7	54.6	12.6	69.3	11	13	12	175	17	22	42	72	1	...	...	...	7.4	57.11	1,450.6
Cassel	N. 51 19	E. 9 28	0.46 p.m.	669	204	29.23	742.4	29.94	760.5	54.0	12.2	67.5	31	50	36	49	14	322	15	15	4	...	...	...	7.4	31.93	811.0
Frankfort	N. 50 08	E. 8 41	0.43 p.m.	338	103	29.63	752.6	29.99	761.7	54.8	12.7	66.8	44	24	32	101	79	30	26	26	3	...	...	...	6.8	36.94	938.3
Friederichshafen	N. 47 39	E. 9 29	0.46 p.m.	1,355	413	28.60	726.4	30.05	763.3	52.2	11.2	75.8	9	8	54	143	80	19	10	42	...	..	...	...	6.6	64.99	1,650.7
Hamburg	N. 53 33	E. 9 58	0.48 p.m.	85	26	29.86	758.4	29.95	760.7	51.8	10.7	74.7	16	34	54	98	83	51	57	18	4	...	...	...	7.2	26.42	671.1

APPENDIX 77.—*Annual summary,* 1882, *of international simultaneous observations*—Continued.

Stations.	Latitude.	Longitude.	Local time.	Altitude of barometer above sea.		Result of simultaneous observations for the year 1882.																			Av. cloudiness.	Total precipitation.	
						Mean barometer.				Mean temperature.		Mean relative humidity.	Wind.														
						Actual.		Reduced.					Directions.										Total movement.				
				Feet.	Meters.	Inches.	Millimeters.	Inches.	Millimeters.	Fahrenheit.	Centigrade.		N.	NW.	W.	SW.	S.	SE.	E.	NE.	Calm.	Blank.	Miles.	Kilometers.	0–10.	Inches.	Millimeters.
GERMAN—Continued.	° ′	° ′										P.ct						*									
Kiel	N. 54 19	E. 10 04	0.48 p. m.	13	4	29.90	759.4	29.92	760.0	50.7	10.4	73.0	19	20	76	80	83	84	50	38	12	...	......	......	6.8	29.65	753.1
Liepsic	N. 51 20	E. 12 24	0.58 p. m.	390	119	29.57	751.1	29.99	761.7	53.3	11.8	66.4	20	41	43	102	56	34	36	32	1	...	......	......	7.2	36.58	929.1
Magdeburg	N. 52 09	E. 11 37	0.54 p. m.	177	54	29.77	756.1	29.96	761.0	53.8	12.1	68.8	18	34	82	51	53	43	46	30	8	...	......	......	7.0	24.16	613.7
Memel	N. 55 43	E. 21 07	1.32 p. m.	39	12	29.93	760.2	29.98	761.5	49.3	9.6	73.8	22	61	65	65	40	46	36	28	2	...	......	......	6.5	......	......
Munich	N. 48 09	E. 11 34	0.54 p. m	1,732	528	28.20	716.3	30.08	764.0	51.8	11.0	63.5	40	123	30	21	2	17	27	54	51	...	......	......	6.2	37.76	959.1
Neufahrwasser	N. 54 24	E. 18 40	1.25 p. m	16	5	29.95	760.7	29.97	761.2	51.1	10.6	70.7	47	40	48	52	38	51	37	47	5	..	......	......	6.9	25.87	657.1
Neustadt	N. 49 21	E. 8 08	0.41 p. m	479	146	29.47	748.5	30.00	762.0	54.4	12.4	70.8	25	6	112	34	46	6	31	35	62	8	......	......	7.2	37.00	939.8
Stuttgart	N. 48 47	E. 9 11	0.45 p. m.	833	254	29.06	738.1	29.95	760.7	54.8	12.7	65.5	104	24	101	49	17	10	41	19	...	...	......	......	6.5	33.53	851.6
Wustrow	N. 54 21	E. 12 24	0.58 p. m.	23	7	29.93	760.2	29.95	760.7	50.5	10.3	81.1	28	17	59	79	40	68	37	36	1	...	......	......	7.3	19.49	495.0
GREEK.																											
Athens	N. 37 58	E. 23 44	1.43 p. m.	361	110	29.63	752.6	.....	.....	69.9	21.1	...	55	12	16	119	52	3	4	104	...	...	......	......	4.2	14.60	370.8
INDIAN.																											
Kurrachee	N. 24 47	E. 67 04	4.36 p. m.	49	15	29.79	756.7	29.84	757.9	81.8	27.7	67.9	...	10	149	178	1	4	9	12	...	2	......	......	3.5	10.54	267.7
Deesa	N. 24 16	E. 72 14	4.57 p. m.	466	142	29.29	744.0	29.75	755.6	89.3	31.8	37.8	35	52	89	125	23	17	1	18	5	...	......	......	3.1	20.41	518.4
Bombay	N. 18 54	E. 72 49	5.00 p. m.	37	11	29.77	756.1	29.81	757.2	82.1	27.8	73.3	34	177	115	34	4	1	.	...	...	...	......	......	3.9	69.23	1,758.4
Poona	N. 18 28	E. 74 10	5.05 p. m	1,849	561	27.94	709.7	29.78	756.4	84.1	28.9	41.9	18	51	151	60	3	10	37	34	1	...	......	......	4.8	30.01	762.2
Belgaum	N. 15 52	E. 74 42	5.07 p. m	2,550	777	27.29	693.2	29.82	757.4	77.3	25.2	60.1	9	12	106	128	11	9	34	55	1	...	......	......	4.9	37.78	1,874.0
Bellary	N. 15 09	E. 76 57	5.16 p. m.	1,455	444	28.31	719.1	....	...	87.3	30.7	40.2	14	49	98	31	7	65	67	34	...	...	......	......	5.8	4.38	111.2
Lahore	N. 31 34	E. 74 20	5.05 p. m.	732	223	29.00	736.6	29.74	755.4	82.2	27.9	45.7	30	87	59	16	1	7	30	80	155	...	......	......	2.6	37.43	950.7
Roorkee	N. 29 52	E. 77 56	5.20 p. m	887	270	28.83	732.3	29.73	755.1	81.3	27.4	49.7	8	99	50	31	13	29	17	11	107	..	......	......	4.0	38.39	975.1
Agra	N. 27 10	E. 78 05	5.20 p. m	555	169	29.18	741.2	29.74	755.4	86.0	30.0	39.8	30	75	113	12	12	10	46	23	44	..	......	......	2.3	27.87	707.9
Nagpur	N. 21 09	E. 79 11	5.24 p. m.	1,025	312	28.70	729.0	29.73	755.1	86.5	30.3	42.4	21	47	39	47	15	16	24	22	134	...	......	......	4.5	49.83	1,265.7
Jubbulpore	N. 23 09	E. 79 59	5.28 p. m	1,341	409	28.41	721.6	29.77	756.1	81.9	27.7	45.3	43	57	45	7	18	6	28	53	108	...	......	......	3.8	70.10	1,780.5
Lucknow	N. 26 50	E. 81 00	5.32 p. m	369	113	29.37	746.0	29.74	755.4	84.5	29.2	45.0	5	30	45	31	2	10	20	16	206	...	......	......	2.4	22.87	568.2
Allahabad	N. 25 26	E. 81 52	5.35 p. m.	307	94	29.42	747.3	29.73	755.1	81.8	27.7	55.3	9	48	14	15	5	12	28	53	181	...	......	......	3.2	42.71	1,084.8

Patna	N. 25 37	E. 85 08	5.49 p. m	183	56	29.58	751.3	29.76	755.9	81.3	27.4	59.8	25	67	81	17	6	17	78	61	18	...	......	......	3.8	34.72	881.9
Hazaribagh	N. 24 00	E. 85 24	5.50 p. m.	2,007	612	27.74	704.6	29.75	755.6	77.8	25.4	52.2	83	118	38	15	19	28	31	14	19	...	......	......	4.8	54.87	1,393.7
Cuttack	N. 20 29	E. 85 54	5.52 p. m.	80	24	29.68	753.9	29.76	755.9	82.3	27.9	66.4	5	10	21	62	77	27	8	44	111	...	......	......	4.2	79.41	2,017.0
Calcutta	N. 22 33	E. 88 21	6.01 p. m.	21	6	29.73	755.1	29.75	755.6	79.9	26.1	71.6	48	48	26	70	70	39	19	18	17	10	......	......	4.4	66.18	1,680.9
Dhubri	N. 26 07	E. 89 50	6.08 p. m.	115	35	29.64	752.8	29.76	755.9	77.6	25.3	74.1	8	7	1	11	12	9	31	59	225	2	......	......	3.6	107.93	2,741.4
Chittagong	N. 22 21	E. 91 50	6.15 p. m.	87	26	29.71	754.6	29.80	756.9	78.3	25.7	79.5	2	29	70	68	51	53	17	9	65	1	......	......	4.5	4.99	126.7
Sibsagar	N. 26 59	E. 94 40	6.27 p. m	333	102	29.46	748.3	29.80	756.9	75.3	24.1	81.7	4	7	4	65	9	14	19	240	3	...	......	......	5.5	82.19	2,087.6
Jeypore	N. 26 55	E 75 50	5.05 p. m	1,431	436	28.32	719.3	29.75	755.6	84.7	29.3	40.7	35	141	59	37	8	15	27	39	4	...	......	......	3.8	23.31	592.1
Zanzibar	S. 6 10	E. 39 11	2.45 p. m	23	7	29.92	760.0	....	....	83.1	28.4	65.4	45	17	10	26	103	87	20	50	6	1	......	......	5.5	48.17	1,223.5
ITALIAN.																											
Undine	N. 46 04	E. 13 13	1.01 p. m.	381	116	29.63	752.6	30.03	762.7	61.3	16.3	59.8	14	10	21	49	46	22	43	42	115	3	......	......	5.4	69.45	1,764.0
Milan	N. 45 28	E. 9 11	0.45 p. m.	482	147	29.49	749.0	30.02	762.5	60.3	15.7	59.2	18	33	54	78	28	79	36	39	...	...	......	......	4.9	40.89	1,267.2
Padua	N. 45 24	E. 11 53	0.56 p. m	102	31	29.91	759.7	30.02	762.5	60.7	15.9	59.4	56	29	34	25	40	55	61	55	10	...	......	......	5.2	31.55	801.4
Moncalieri	N. 45 00	E. 7 41	0.39 p. m.	846	258	29.11	739.4	30.02	762.5	58.5	14.7	61.0	46	56	12	12	48	48	96	47	..	...	......	......	4.9	34.00	863.6
Genoa	N. 44 24	E. 8 55	0.44 p. m.	157	48	29.82	757.4	30.02	762.5	62.9	17.2	58.5	58	15	6	110	28	78	14	36	20	...	......	......	4.6	53.34	1,354.8
Mondovi	N. 44 23	E. 7 48	0.39 p. m.	1,824	556	28.12	714.2	30.02	762.5	57.0	13.9	55.6	29	76	177	9	6	14	26	25	1	2	......	......	3.0	28.84	732.5
Pesaro	N. 43 55	E. 12 53	1.00 p. m	46	14	29.96	761.0	30.02	762.5	60.8	16.0	66.8	114	27	24	40	8	41	49	62	...	...	......	......	5.6	22.40	568.9
Florence	N. 43 46	E. 11 15	0.55 p. m	240	73	29.76	755.9	30.02	762.5	64.5	18.1	53.0	28	54	55	83	18	19	24	83	1	...	......	......	4.9	40.14	1,019.5
Leghorn	N. 43 33	E. 10 18	0.49 p. m.	79	24	29.89	759.2	29.97	761.2	63.9	17.7	63.0	16	36	105	64	42	6	27	69	...	...	......	......	5.3	31.42	798.1
Rome	N. 41 54	E. 12 29	0.58 p. m	164	50	29.85	758.2	30.02	762.5	67.9	19.9	49.5	84	27	61	107	53	8	8	14	3	...	......	......	5.0	26.99	685.5
Lecce	N. 40 22	E. 18 12	1.21 p. m.	236	72	29.77	756.1	30.02	762.5	67.9	19.9	55.1	75	59	27	44	50	36	26	48	...	...	......	......	3.9	17.37	441.2
Cosenza	N. 39 19	E. 16 17	1.13 p. m.	840	256	29.15	740.4	30.03	762.7	66.9	19.4	73.4	9	37	69	123	47	55	16	9	...	...	......	......	4.9	36.87	936.5
Cagliari	N. 39 30	E. 9 00	0.45 p. m.	180	55	29.81	757.2	30.00	762.0	68.3	20.2	55.5	...	127	27	13	49	114	3	...	30	2	......	......	3.6	15.36	390.1
Palermo	N. 38 07	E. 13 21	1.02 p. m	236	72	29.81	757.2	30.05	763.3	68.7	20.4	52.7	16	50	34	37	3	5	34	177	9	...	......	......	4.5	20.14	511.5
Syracuse	N. 37 03	E. 15 15	1.09 p. m.	72	22	29.98	761.5	30.02	762.5	68.9	20.5	63.6	18	13	47	35	81	35	55	77	4	...	......	......	5.2	13.40	340.4
Sub-series.																											
Naples	N. 40 52	E. 14 15	1.05 p. m.	489	149	29.50	749.3	30.02	762.5	66.4	19.1	61.4	25	17	43	124	30	33	83	59	...	1	......	......	4.8	33.57	852.7
Stelvio	N. 46 32	E. 10 25	0.50 p. m	8,343	2,543	22.14	562.3	....	.....	34.0	1.1	63.8	2	8	56	104	27	57	42	74	...	...	......	......	4.8	53.18	1,350.7
Valdobbia	N. 45 47	E. 7 51	0.40 p. m.	8,360	2,548	22.19	563.6	.....	.....	36.2	2.3	64.7	103	9	7	8	[illegible]	[illegible]	140	62	...	...	......	......	6.1	94.20	2,392.6
JAPANESE.																											
Awomori	N. 40 51	E. 140 45	9.31 p. m.	32	10	29.94	760.5	29.97	761.2	47.5	8.6	82.7	43	11	90	45	69	18	45	8	86	...	......	......	6.5	43.92	1,115.6
Hakodate	N. 41 47	E. 140 44	9.31 p. m.	10	3	29.94	760.5	29.95	760.7	45.8	7.7	81.5	66	36	65	13	9	12	79	24	61	...	......	......	5.9	46.23	1,174.2
Hiroshima	N. 34 23	E. 132 27	8.58 p. m.	14	4	.....	.....	.....	.....	57.1	18.9	80.6	201	17	50	28	23	1	17	22	6	...	......	......	5.3	44.56	1,131.8
Kanazawa	N. 36 33	E. 136 40	9.14 p. m.	95	29	29.96	761.0	30.06	763.5	53.9	12.2	84.3	...	...	...	...	...	...	...	...	...	...	......	......	7.2	......	......
Kioto	N. 35 01	E. 135 46	9.11 p. m.	162	49	29.85	758.2	30.02	762.5	54.8	12.7	82.8	121	52	46	20	46	13	32	27	8	...	......	......	5.7	48.74	1,238.0
Nagasaki	N. 32 44	E. 129 52	8.47 p. m.	189	58	29.83	757.7	30.04	763.0	58.8	14.9	80.6	79	28	14	41	37	23	21	73	49	...	......	......	5.3	106.11	2,695.1
Niigata	N. 37 55	E. 139 03	9.24 p. m.	32	10	29.97	761.2	30.00	762.0	53.7	12.1	82.1	65	7	68	38	25	75	46	25	16	...	......	......	7.2	52.60	1,336.0
Nobiru	N. 38 23	E. 141 11	9.32 p. m.	15	5	29.97	761.2	29.98	761.5	51.5	10.8	83.8	160	39	21	14	58	20	31	20	2	...	......	......	6.3	47.67	1,210.8
Supporo	N. 43 04	E. 141 23	9.33 p. m.	60	18	.....	.....	.....	.....	43.5	6.4	83.3	20	34	23	27	56	78	19	25	83	...	......	......	6.2	34.51	876.5
Tokei	N. 35 41	E. 139 46	9.27 p. m.	69	21	29.92	760.0	30.00	762.0	55.8	12.9	83.1	124	24	15	8	98	14	54	18	15	...	......	......	5.8	58.06	1,474.7
Wakayama	N. 34 14	E. 135 09	9.09 p. m.	48	15	29.97	761.2	30.02	762.5	58.4	14.7	76.5	60	35	22	12	51	2	69	53	61	...	......	......	6.0	47.51	1,206.7
MAURITIUS.																											
Mauritius	S. 20 06	E. 57 33	8.58 p. m.	181	55	29.86	758.4	30.04	763.0	76.7	24.8	67.8	15	14	16	12	10	48	190	65	...	...	......	......	5.6	56.12	1,425.4

APPENDIX 77.—*Annual summary, 1882, of international simultaneous observations*—Continued.

Stations.	Latitude.	Longitude.	Local time.	Altitude of barometer above sea.		Result of simultaneous observations for the year 1882.																			Av. cloudiness.	Total precipitation.	
						Mean barometer.				Mean temperature.		Mean relative humidity.	Wind.														
						Actual.		Reduced.					Directions.										Total movement.				
				Feet.	Meters.	Inches.	Millimeters.	Inches.	Millimeters.	Fahrenheit.	Centigrade.		N.	NW.	W.	SW.	S.	SE.	E.	NE.	Calm.	Blank.	Miles.	Kilometers.	0-10.	Inches.	Millimeters.
MEXICAN.												*P.ct*															
Leon	N. 21 07	W. 101 35	5.28 a. m.	5,901	1,799	24.38	619.2	30.10	764.5	55.0	12.8	82.9	76	164	4	24	4	23	6	54	9	1	......	......	4.4	†27.63	†701.8
Mazatlan	N. 23 11	W. 106 17	5.03 a. m.	249	76	29.71	754.6	29.97	761.2	70.8	21.6	85.0	26	80	6	10	3	34	73	125	6	2	......	......	4.4	16.77	426.0
Mexico	N. 19 26	W. 99 00	5.32 a. m.	7,490	2,283	23.13	587.5	30.21	767.3	51.3	10.7	75.8	7	50	12	8	...	1	...	2	285	...	......	......	4.3	25.97	659.6
Morelia	N. 19 42	W. 101 06	5.21 a. m.	6,247	1,940	24.16	613.7	30.31	769.9	56.6	13.7	67.8	22	2	6	9	48	172	34	72	...	...	......	......	2.9	†25.68	†652.3
Pabellon	N. 22 04	W. 102 04	5.20 a. m.	6,312	1,924	23.97	608.8	29.99	761.7	55.3	12.9	74.7	25	23	35	27	5	7	2	17	217	7	......	......	...	17.43	442.7
Puebla	N. 19 02	W. 98 03	5.36 a. m.	7,113	2,168	23.44	595.4	30.22	767.6	50.3	10.2	75.0	11	15	...	...	1	1	1	27	309	...	......	......	2.9	†55.36	†1,406.1
NETHERLANDS.																											
Flushing	N. 51 24	E. 3 35	0.22 p. m.	0	0	29.97	761.2	29.97	761.2	53.8	12.1	....	26	21	79	79	58	44	37	21	...	...	......	......	...	28.93	734.8
Groningen	N. 53 12	E. 6 34	0.34 p. m.	(?)	(?)	29.88	758.9	29.93	760.2	52.5	11.4	....	35	44	39	92	74	25	33	22	...	1	......	......	...	32.43	823.7
Helder	N. 52 58	E. 4 45	0.27 p. m.	0	0	29.92	760.0	29.92	760.0	50.6	10.3	....	22	32	46	[illegible]	90	34	42	34	...	...	......	......	...	33.43	849.1
Hellevoetsluis	N. 51 49	E. 4 08	0.25 p. m	0	0	29.95	760.7	29.95	760.7	53.3	11.8	76.3	15	27	59	106	40	35	41	33	9	...	......	......	...	28.57	725.7
Utrecht	N. 52 05	E. 5 07	0.29 p. m.	43	13	29.94	760.5	29.99	761.7	53.8	12.1	73.7	20	21	45	96	80	53	27	23	...	...	......	......	6.1	37.28	946.9
NORWEGIAN.																											
Bergen	N. 60 24	E. 5 20	0.29 p m.	56	17	29.74	755.4	29.80	756.9	48.1	8.9	68.8	22	63	34	26	115	70	22	1	12	...	......	......	6.8	78.55	1,995.1
Brono	N. 65 28	E. 12 14	0.57 p. m.	34	10	29.73	755.1	29.77	756.1	45.2	7.3	65.9	41	28	26	79	27	55	26	37	46	...	......	......	6.3	31.06	788.9
Christiania	N. 59 55	E. 10 45	0.51 p. m	134	41	29.69	754.1	29.84	757.9	47.8	8.8	69.7	44	20	23	73	68	25	53	52	7	...	......	......	7.1	31.74	806.2
Gjæsvaer	N. 71 07	E. 25 22	1.49 p. m.	23	7	29.67	753.6	29.69	754.1	37.8	3.2	....	20	30	60	40	36	48	33	37	61	...	......	......	7.4	......	....
Lodingen	N. 68 24	E. 16 01	1.12 p. m.	43	13	29.69	754.1	29.74	755.4	41.2	5.1	70.7	39	20	23	85	26	15	31	48	68	...	......	......	6.2	47.68	1,211.0
PORTUGUESE.																											
Angra	N. 38 39	W. 27 14	10.19 p. m.	144	44	....	....	.....	...	64.7	18.2	77.9	39	46	93	33	29	81	32	9	3	...	......	......	4.0	23.35	593.1
Campo	N. 39 02	W. 6 59	11.40 p. m.	945	288	29.11	739.4	30.10	764.5	67.3	19.6	50.3	33	17	69	60	58	15	57	48	8	...	......	......	4.5	17.02	432.3
Funchal	N. 32 38	W. 16 55	11.00 p. m.	82	25	30.12	765.0	30.21	767.3	68.5	20.3	61.9	25	4	17	201	9	40	31	18	19	1	......	......	4.8	15.14	384.6
Lisbon	N. 38 42	W. 9 08	11.31 p. m	335	102	29.81	757.2	30.17	766.3	62.9	17.2	63.4	96	38	27	68	42	14	21	48	11	...	......	......	4.6	21.37	542.8

Ponta Delgada	N. 37 45	W. 25 41	10.25 a. m.	66	20	30.19	766.8	30.26	768.6	67.3	19.6	68.8	43	20	56	47	47	29	31	40	46	...	....	....	4.3	26.98	685.3
St. Paul de Loando ...	S. 8 49	E. 13 07	1.00 p. m.	193	59	29.74	755.4	29.94	760.5	76.7	24.8	84.6	36	71	144	88	3	7	8	6	4	...	....	....	5.1	5.80	149.6
RUSSIAN.																											
Akmolinski	N. 51 12	E. 71 23	4.54 p. m.	848?	306?	28.78	731.0	29.98	761.5	38.8	3.5	....	20	24	49	127	41	23	28	28	20	7	....	....	5.8	5.17	131.3
Archangel	N. 64 33	E. 40 32	2.50 p. m	16	5	29.82	757.4	29.84	757.9	36.1	2.3	77.9	27	56	67	33	48	41	49	20	24	...	....	....	7.9	12.69	322.3
Astrakhan	N. 46 21	E. 48 02	3.20 p. m.	68	2	30.11	764.8	30.02	762.5	55.8	13.2	57.5	30	24	56	44	37	84	52	20	21	...	....	....	5.9	7.26	184.4
Barnaul	N. 53 20	E. 83 47	5.43 p. m.	459?	140?	29.56	750.8	30.07	763.8	36.7	2.6	66.3	18	32	39	116	12	7	7	40	94	...	....	....	6.5	17.27	438.6
Dorpat	N. 58 23	E. 26 43	1.55 p. m	223	68	29.68	753.9	29.93	760.2	47.7	8.7	71.9	30	29	72	57	46	45	43	35	8	...	....	....	7.3	19.66	490.4
Ekaterinburg	N. 56 49	E. 60 38	4.10 p. m.	894?	272?	28.92	734.6	29.91	759.7	37.7	3.2	65.7	45	40	95	61	33	29	10	26	26	...	....	....	7.8	18.09	332.5
Kasan	N. 55 47	E. 49 08	3.24 p. m.	249	76	29.64	752.8	29.92	760.0	43.8	6.6	63.9	51	41	45	68	66	27	19	24	24	...	....	....	7.8	13.67	347.2
Kertch	N. 45 21	E. 36 29	2.34 p. m.	18?	6?	29.93	760.2	29.95	760.7	56.2	13.4	74.6	36	54	24	9	46	53	37	48	58	...	....	....	5.3	13.89	352.8
Kieff	N. 50 27	E. 30 30	2.10 p. m.	600	183	29.30	744.2	29.94	760.5	51.4	10.8	62.8	57	62	50	87	36	51	39	29	4	...	....	....	6.5	20.40	518.2
Lugan	N. 48 35	E. 39 20	2.45 p. m.	188?	57?	29.75	755.6	29.95	760.7	55.1	12.8	56.3	20	39	64	64	46	32	59	39	2	...	....	....	6.8	17.00	431.8
Moscow	N. 55 46	E. 37 40	2.39 p. m.	448	136	29.41	747.0	29.89	759.2	47.2	8.4	62.3	72	31	18	47	99	30	17	21	35	...	....	....	6.3	16.83	427.5
Nikolaiev	N. 46 58	E. 31 58	2.10 p. m.	62	19	29.95	760.7	30.02	762.5	58.6	14.8	62.2	61	29	20	49	69	12	30	45	49	1	....	....	4.4	10.94	277.9
Nikolaievsk	N. 53 08	E. 140 45	9.31 p. m.	75?	23?	29.81	757.2	29.90	759.4	28.2	−2.1	79.4	10	19	44	...	...	22	33	10	214	13	....	....	5.6	18.38	466.8
Pekin	N. 39 57	E. 116 28	7.54 p. m.	123?	38?	29.92	760.0	30.06	763.5	54.8	12.7	55.9	3	50	...	38	7	31	...	7	220	...	....	....	3.0	23.05	585.5
St. Petersburg	N. 59 56	E. 30 16	2.00 p. m.	15	5	29.88	758.9	29.90	759.4	44.8	7.1	67.5	22	90	61	37	47	45	29	34	...	...	....	....	6.6	15.55	395.0
Tashkend	N. 41 19	E. 69 16	4.45 p. m.	1493	455	28.45	722.6	30.01	762.2	60.6	15.9	58.7	22	19	2	...	1	8	1	14	303	...	....	....	3.6	12.91	327.9
Tiflis	N. 41 43	E. 44 47	3.07 p. m.	1343	409	28.60	726.4	30.00	762.0	63.2	17.3	48.0	37	112	8	4	61	62	22	3	56	...	....	....	5.0	16.79	426.5
Vladivostock	N. 43 09	E. 132 00	8.56 p. m.	59?	18?	29.94	760.5	30.02	762.5	39.8	4.3	80.3	78	33	5	9	12	81	23	16	107	1	....	....	4.8	18.57	471.7
Warsaw	N. 52 13	E. 21 02	1.32 p. m.	392	119	29.55	750.6	29.97	761.2	52.2	11.2	67.0	31	53	61	59	58	49	23	24	7	...	....	....	8.0	....	....
Wilna	N. 54 41	E. 25 18	1.49 p. m.	388	118	29.54	750.3	29.97	761.2	50.6	10.3	68.3	23	45	44	66	58	59	30	29	11	...	....	....	7.3	15.03	381.8
SPANISH.																											
Barcelona	N. 41 23	E. 2 15	0.16 p. m.	98	30	29.94	760.5	30.05	763.3	65.5	18.6	64.6	2	15	42	88	69	69	65	13	2	...	....	....	2.9	16.15	410.2
Bilbao	N. 43 15	W. 2 59	11.56 a. m.	52	16	30.07	763.8	30.12	765.0	64.8	18.2	64.1	17	175	21	12	29	78	14	15	4	...	....	....	6.1	49.09	1,246.9
Burgos	N. 42 20	W. 3 46	11.53 a. m.	2,821	860	27.16	689.9	30.12	765.0	56.2	13.4	61.4	59	11	46	96	44	6	4	99	...	...	....	....	4.7	19.70	500.4
Madrid	N. 40 25	W. 3 42	11.53 a. m.	2,152	656	27.88	708.1	30.08	764.0	63.7	17.6	51.6	20	81	35	101	30	22	32	58	30	...	....	....	3.3	14.02	356.1
Santiago	N. 42 53	W. 8 28	11.34 a. m.	863	263	29.18	741.2	30.07	763.8	59.9	15.5	71.8	37	29	30	87	18	19	9	48	88	...	....	....	6.8	65.23	1,656.8
Sub-series.																											
Manilla	N. 14 35	E. 120 56	8.12 p. m.	54	16	29.85	758.2	29.91	759.7	79.9	26.6	78.9	64	11	11	47	40	44	96	52	...	...	....	....	4.9	88.72	2,253.4
San Fernando	N. 36 28	W. 6 13	11.43 a. m.	95	29	30.05	763.3	30.15	765.8	67.6	19.8	60.3	16	38	119	21	23	27	75	16	80	...	....	....	3.9	14.85	377.2
San Juan de Porto Rico	N. 18 30	W. 66 10	7.44 a. m	82	25	29.98	761.5	30.07	763.8	77.9	25.5	87.1	5	1	4	7	14	86	51	11	186	...	....	....	3.4	46.83	1,189.5
Tuguegarao	N. 17 37	E. 121 30	8.14 p. m.	125	38	29.80	756.9	29.94	760.5	77.5	25.3	84.3	54	204	12	18	31	25	8	9	9	...	....	....	6.3	25.35	643.9
SWEDISH.																											
Haparanda	N. 65 47	E. 24 03	1.44 p. m.	29	9	29.80	756.9	29.84	757.9	37.7	3.2	79.7	63	27	12	79	76	80	16	44	18	...	....	....	6.3	15.04	382.0
Umea	N. 63 50	E. 20 17	1.29 p. m.	39	12	29.80	756.9	29.85	758.2	42.8	6.0	73.7	34	58	14	104	40	22	30	43	20	...	....	....	6.5	23.93	607.8
Hernosand	N. 62 32	E. 17 57	1.20 p. m.	46	14	29.80	756.9	29.85	758.2	44.8	7.1	69.8	31	30	26	30	85	33	28	44	58	...	....	....	6.2	23.34	592.8
Stockholm	N. 59 20	E. 18 04	1.20 p. m.	144	44	29.70	754.4	29.88	758.9	48.2	9.0	67.2	29	23	67	57	53	44	53	29	10	...	....	....	6.3	21.17	537.7
Wisby	N. 57 39	E. 18 19	1.21 p. m.	52	16	29.82	757.4	29.88	758.9	49.0	9.4	74.5	47	32	75	64	33	50	41	22	1	...	....	....	5.3	21.90	558.5
Sub-series.																											
Upsala	N. 59 51	E. 17 37	1.19 p. m.	79	24	29.78	756.4	29.86	758.4	47.4	8.6	70.7	37	49	39	68	62	40	36	34	...	...	....	....	7.0	21.73	551.9

APPENDIX 77.—*Annual summary, 1882, of international simultaneous observations*—Continued.

Stations.	Latitude.	Longitude.	Local time.	Altitude of barometer above sea.		Result of simultaneous observations for the year 1882.																			Av. cloudiness.	Total precipitation.	
						Mean barometer.				Mean temperature.		Mean relative humidity.	Wind.														
						Actual.		Reduced.					Directions.										Total movement.				
				Feet.	Meters.	Inches.	Millimeters.	Inches.	Millimeters.	Fahrenheit.	Centigrade.		N.	NW.	W.	SW.	S.	SE.	E.	NE.	Calms.	Blank.	Miles.	Kilometers.	0-10.	Inches.	Millimeters.
SWISS.																											
	° '	° '										P. ct.															
Geneva	N. 46 12	E. 6 08	0.33 p. m.	1,338	408	28.64	727.4	30.07	763.8	54.0	12.2	65.2	128	30	18	49	70	21	16	31	2	...	....	....	6.0	41.68	1,058.6
TURKISH.																											
Constantinople	N. 41 00	E. 28 59	2.04 p. m.	230	70	.....	.....	30.04	763.0	62.4	16.9	59.6	112	19	8	70	30	17	15	91	3	...	....	....	5.1	19.01	482.8
Valona	N. 40 27	E. 19 27	1.26 p. m.	105	32	.....	.....	30.09	764.3	68.8	20.2	.....	4	95	74	75	62	29	6	20	...	...	....	....	3.6	25.96	659.4
Sub-series.																											
Beirut	N. 33 54	E. 35 28	2.30 p. m.	111	34	.....	.....	29.94	760.5	72.7	22.6	63.8	65	47	102	104	9	4	3	27	4	...	....	....	3.4	37.87	961.9
UNITED STATES.																											
Albany	N. 42 39	W. 73 45	7.13 a. m.	75	23	30.00	762.0	30.08	764.0	48.0	8.9	69.6	80	51	48	30	98	8	3	17	21	...	49,973	80,422	6.6	33.76	857.5
Alpena	N. 45 05	W. 83 30	6.34 a. m.	610	186	29.37	746.0	30.05	763.3	40.0	4.4	81.0	22	86	95	31	35	38	39	14	4	1	85,668	137,865	6.8	45.10	1,145.5
Apache, Fort	N. 33 48	W. 109 57	4.48 a. m.	B. 5,000	B. 1,524	25.05	636.3	30.12	765.0	38.0	3.3	66.4	3	2	5	12	5	17	113	201	7	...	56,638	91,148	3.1	27.62	701.5
Assinaboine, Fort	N. 48 32	W. 109 42	4.49 a. m.	B. 2,710	B. 826	27.14	689.3	30.06	763.5	35.8	2.1	65.5	11	9	26	204	20	15	11	57	12	...	90,398	145,478	4.3	12.76	324.1
Atlanta	N. 33 45	W. 84 23	6.31 a. m.	1,131	345	28.94	735.1	30.14	765.5	56.4	13.6	80.9	17	84	58	27	28	20	91	39	1	...	75,852	122,070	6.1	58.22	1,478.8
Atlantic City	N. 39 22	W. 74 25	7.10 a. m.	18	4	30.07	763.8	30.08	764.0	50.2	10.1	80.9	74	52	54	49	42	18	28	45	3	...	86,498	139,202	5.6	55.29	1,404.3
Augusta	N. 33 28	W. 81 54	6.40 a. m.	185	56	29.96	761.0	30.15	765.8	59.2	15.1	81.9	16	40	28	24	29	16	17	62	133	...	33,143	53,327	5.4	49.62	1,260.3
Baltimore	N. 39 18	W. 76 37	7.02 a. m.	45	14	30.08	764.0	30.12	765.0	52.0	11.1	74.0	73	72	28	20	46	11	35	50	30	...	48,435	77,946	5.7	42.11	1,069.6
Barnegat City	N. 39 46	W. 74 06	7.12 a. m.	22	7	30.06	763.5	30.08	764.0	50.6	10.8	80.9	63	58	70	50	32	19	54	18	1	...	117,564	189,196	5.9	72.90	1,851.6
Bennett, Fort	N. 44 43	W. 100 39	5.26 a. m.	B. 1,440	B. 439	28.36	720.3	30.02	762.5	37.3	2.9	80.6	36	97	21	9	5	95	8	18	66	...	69,122	111,237	5.1	17.80	452.1
Benton, Fort	N. 47 50	W. 110 40	4.45 a. m.	B. 2,700	B. 823	27.17	690.1	30.09	764.3	36.5	2.5	70.4	7	16	50	89	2	3	12	36	139	11	72,087	116,010	4.7	10.18	258.6
Bismarck	N. 46 47	W. 100 38	5.26 a. m.	1,693	516	28.16	715.3	30.05	763.3	34.6	1.4	81.4	27	87	16	14	19	40	87	27	44	4	84,205	135,411	4.7	21.33	541.8
Block Island	N. 41 10	W. 71 36	7.22 a. m.	27	8	30.03	762.7	30.06	763.5	48.2	9.0	79.3	68	56	42	62	8	21	21	53	34	..	132,371	213,025	5.3	57.65	1,464.3
Boisé City	N. 43 37	W. 116 08	4.24 a. m.	B. 2,768	B. 843	27.22	691.4	30.14	765.5	39.2	4.0	77.7	47	81	109	10	6	24	24	25	35	4	40,935	65,877	4.6	14.43	366.5

Boston	N. 42 21	W. 71 04	7.24 a. m.	142	43	29.89	759.2	30.05	763.3	44.9	7.2	75.1	23	87	112	60	17	18	10	33	5	...	88,409	142,276	5.5	43.82	1,118.0
Brownsville	N. 25 53	W. 97 26	5.38 a. m.	43	13	29.95	760.7	30.01	762.2	69.4	20.8	89.8	53	13	3	8	80	75	15	14	103	1	62,308	100,273	5.1	32.56	827.0
Buffalo	N. 42 53	W. 78 53	6.52 a. m	696	212	29.30	744.2	30.07	763.8	44.5	6.9	78.7	19	20	44	80	67	30	14	79	11	1	90,410	145,490	6.6	33.82	859.0
Buford, Fort	N. 48 00	W. 103 56	5.12 a. m.	B. 1,876	B. 572	28.00	711.2	30.08	764.0	33.6	0.9	74.3	27	23	74	18	48	14	79	58	22	2	77,536	124,779	4.4	12.73	323.3
Burlington	N. 44 29	W. 73 13	7.15 a. m.	268	82	29.74	755.4	30.04	763.0	42.0	5.6	75.1	75	26	24	9	131	17	22	27	34	...	67,827	108,349	6.7	25.64	651.2
Cairo	N. 37 00	W. 89 10	6.11 a. m.	377	115	29.72	754.9	30.12	765.0	54.9	12.7	82.3	58	28	30	52	62	33	17	50	35	...	67,434	108,521	5.5	61.58	1,564.1
Camp Thomas	N. 33 04	W. 110 02	4.48 a. m	B. 2,710	B. 826	27.24	691.9	30.03	762.7	49.2	9.6	69.7	11	23	21	17	37	70	25	6	145	10	......	....	2.6	8.66	220.0
Cape Henry	N. 36 56	W. 76 00	7.04 a. m.	16	5	30.09	764.3	30.11	764.8	56.5	13.6	79.3	57	56	30	85	48	16	18	53	2	...	112,191	180,549	5.2	57.51	1,460.7
Cape May	N. 38 56	W. 74 58	7.08 a. m	27	8	30.05	763.3	30.08	764.0	52.6	11.4	78.8	45	62	39	38	44	23	28	51	12	23	123,041	198,010	5.4	51.96	1,319.8
Cedar Keys	N. 29 08	W. 83 02	6.36 a. m.	22	7	30.09	764.3	30.11	764.8	67.6	19.8	81.7	53	27	34	19	34	38	67	84	9	...	77,321	124,433	4.3	66.90	1,699.2
Champaign	N. 40 08	W. 88 14	6.15 a. m.	767	234	29.23	742.4	30.06	763.5	46.5	8.1	75.9	40	53	31	52	64	43	24	57	1	...	99,773	160,565	6.1	53.84	1,367.5
Charleston	N. 32 47	W. 79 56	6.48 a. m.	52	16	30.06	763.5	30.12	765.0	63.2	17.3	82.9	53	36	59	89	6	5	12	85	18	2	70,948	113,177	4.6	57.01	1,448.0
Charlotte	N. 35 13	W. 80 51	6.44 a. m	838	255	29.24	742.7	30.11	764.8	55.5	13.1	78.7	47	28	29	92	29	15	31	88	6	...	44,864	72,199	5.1	53.53	1,359.6
Chattanooga	N. 35 04	W. 85 15	6.27 a. m.	774	236	29.31	744.5	30.14	765.5	55.1	12.8	82.8	33	53	28	61	43	21	16	56	54	...	51,014	82,096	5.2	61.96	1,573.8
Cheyenne	N. 41 08	W. 104 48	5.09 a. m.	6,057	1,846	24.02	610.1	30.13	765.3	35.5	1.9	60.1	42	139	98	42	17	7	3	9	8	...	88,856	142,996	3.2	8.64	219.5
Chicago	N. 41 52	W. 87 38	6.18 a. m.	661	201	29.33	745.0	30.05	763.3	46.5	8.1	80.2	23	53	66	74	42	34	33	40	...	...	76,222	122,664	5.5	41.34	1,050.0
Chincoteague	N. 37 55	W. 75 23	7.06 a. m.	18	5	30.07	763.8	30.09	764.3	53.4	11.9	83.7	68	79	22	83	54	24	33	43	9	...	93,898	151,110	5.6	35.10	891.5
Cincinnati	N. 39 06	W. 84 30	6.30 a. m.	620	189	29.44	747.8	30.11	764.8	52.3	11.3	76.9	56	40	35	35	47	61	44	32	14	1	49,626	79,864	5.9	52.12	1,323.8
Cleveland	N. 41 30	W. 81 42	6.41 a. m.	690	210	29.33	745.0	30.09	764.3	46.1	7.8	78.8	24	25	38	48	79	87	28	34	2	...	82,147	132,200	6.5	39.98	1,015.5
Coleman City	N. 31 53	W. 99 18	5.31 a. m.	1,710	521	28.24	717.3	30.09	764.3	54.9	12.7	85.8	57	26	14	44	65	67	16	30	23	23	71,929	115,755	5.4	35.60	904.2
Columbus	N. 39 58	W. 83 00	6.36 a. m	805	245	29.22	742.2	30.09	764.3	48.0	8.9	77.7	50	44	52	49	59	42	21	41	7	...	65,151	104,847	6.5	51.30	1,303.0
Concho, Fort	N. 31 25	W. 100 24	5.26 a. m.	B. 1,888	B. 575	28.11	714.0	30.09	764.3	55.5	13.1	82.7	32	20	29	45	59	22	22	39	97	...	80,936	130,250	5.1	42.12	1,069.8
Custer, Fort	N. 45 48	W. 107 38	4.58 a. m	B. 3,040	B. 927	26.81	681.0	30.06	763.5	36.9	2.7	74.6	47	39	36	42	52	57	52	18	22	...	64,098	103,153	4.8	12.05	306.1
Davenport	N. 41 30	W. 90 38	6.06 a. m.	604	184	29.39	746.5	30.06	763.5	46.8	8.2	76.2	27	69	42	57	32	29	48	54	7	...	77,413	124,581	5.7	36.60	929.6
Davis, Fort	N. 30 38	W. 103 56	5.12 a. m.	B 5,203	B. 1,586	25.18	639.6	30.07	763.8	50.3	10.2	71.5	41	25	7	50	60	19	5	14	136	8	......	....	2.7	20.22	513.6
Dayton	N. 46 19	W. 117 56	4.16 a. m.	B. 1,660	B. 506	28.30	718.8	30.10	764.5	40.9	4.9	78.9	18	1	7	179	39	24	12	45	40	...	46,864	75,418	4.3	33.52	851.4
Deadwood	N. 44 23	W. 103 43	5.13 a. m.	B. 4,600	B. 1,402	25.33	643.4	30.05	763.3	37.8	3.2	74.9	30	15	16	115	38	17	33	47	53	1	42,283	68,046	4.0	33.88	859.3
Delaware Breakwater	N. 38 48	W. 75 10	7.07 a. m.	20	6	30.07	763.8	30.09	764.3	51.8	11.0	84.0	51	53	41	69	35	21	16	78	1	...	139,509	224,513	5.7	35.95	913.1
Denison	N. 33 48	W. 96 32	5.42 a. m.	767	234	29.25	742.9	30.07	763.8	57.0	13.9	83.6	63	27	14	37	99	32	16	22	46	9	59,760	96,172	5.2	50.44	1,281.2
Denver	N. 39 43	W. 105 00	5.08 a. m.	52, 94	1,614	24.73	628.1	30.09	764.3	41.7	5.4	31.6	38	39	20	18	178	41	7	8	15	1	61,152	98,412	2.6	14.49	368.0
Des Moines	N. 41 35	W. 93 37	5.54 a. m.	849	259	29.14	740.1	30.07	763.8	44.0	6.7	78.5	72	53	30	45	36	42	24	31	82	...	61,889	99,598	5.6	47.60	1,209.0
Detroit	N. 42 20	W. 83 03	6.36 a. m	661	201	29.35	745.5	30.07	763.8	47.9	8.8	79.6	49	51	54	51	52	26	30	37	13	2	86,774	139,646	5.8	30.32	770.1
Dodge City	N. 37 45	W. 100 00	5.28 a. m.	2,517	767	27.41	696.2	30.09	764.3	44.1	6.7	77.8	78	35	36	34	99	33	7	24	17	2	102,662	164,214	3.8	13.14	333.8
Dubuque	N. 42 30	W. 90 44	6.05 a. m.	665	203	29.32	744.7	30.05	763.3	43.5	6.4	76.1	20	65	54	31	60	36	32	30	37	...	45,298	72,898	5.6	32.84	834.1
Duluth	N. 46 48	W. 92 06	6.00 a. m.	687	209	29.30	744.2	30.05	763.3	37.8	3.2	78.1	21	71	56	68	11	8	10	92	28	...	75,520	121,535	5.9	38.02	965.7
Eagle Pass	N. 28 44	W. 100 29	5.26 a. m.	800	244	29.25	742.9	30.06	763.5	62.3	16.8	81.6	8	60	..	7	9	174	14	19	74	...	51,438	82,779	5.2	22.68	576.1
Eagle Rock	N. 43 32	W. 111 55	4.40 a. m.	4,766	1,453	25.30	642.6	30.06	763.5	29.3	− 1.5	71.6	131	7	25	121	41	...	3	2	35	...	90,733	146,017	3.2	18.05	458.5
Eastport	N. 44 54	W. 66 59	7.40 a. m.	61	18	29.93	760.2	30.00	762.0	39.4	4.1	77.4	71	66	34	52	66	7	13	46	10	...	88,717	142,772	5.2	47.18	1,198.4
Elliott, Fort	N. 35 30	W. 100 21	5.27 a. m.	B. 3,000	B. 1,914	27.24	691.9	30.08	764.0	45.2	7.3	64.2	53	64	8	26	40	82	8	37	46	1	94,211	151,614	3.5	24.76	628.9
El Paso	N. 31 47	W. 106 30	5.02 a. m.	B. 3,722	B. 489	26.28	667.5	30.12	765.0	50.0	10.0	63.9	8	117	57	6	...	8	41	60	68	...	51,506	82,888	2.1	8.27	210.1
Erie	N. 42 07	W. 80 05	6.48 a. m	681	208	29.33	745.0	30.07	763.8	47.2	8.4	78.3	18	34	25	63	101	30	18	32	44	...	77,928	125,410	6.4	46.37	1,177.8
Escanaba	N. 45 48	W. 87 05	6.20 a. m.	615	189	29.36	745.7	30.04	763.0	39.4	4.1	82.0	80	57	48	34	38	21	9	31	47	...	74,286	119,548	6.4	40.07	1,017.8
Fredericksburg	N. 30 17	W. 98 52	5.32 a. m.	1,614	492	28.30	718.8	30.07	763.8	60.1	15.6	86.7	38	24	25	87	37	10	13	19	96	16	55,171	88,786	6.0	33.46	849.9
Galveston	N. 29 18	W. 94 47	5.49 a. m.	48	15	30.00	762.0	30.05	763.3	69.0	20.6	84.2	38	16	15	42	114	54	34	51	1	...	108,401	174,450	6.4	57.68	1,465.0
Grand Haven	N. 43 05	W. 86 18	6.23 a. m.	616	188	29.36	745.7	30.04	763.0	45.5	7.5	79.7	22	39	48	34	46	36	62	73	5	...	98,625	158,717	6.1	42.16	1,070.8
Grant, Fort	N. 32 39	W. 109 57	4.48 a. m.	B. 4,844	B. 1,476	25.25	641.3	30.06	763.5	49.8	9.9	54.2	39	25	5	31	8	44	97	89	27	...	57,109	9,204	2.8	14.82	376.4
Hatteras	N. 35 15	W. 75 40	7.05 a. m.	20	6	30.08	764.0	30.10	764.5	60.4	15.8	83.7	43	47	28	68	19	19	22	113	6	...	143,682	231,228	5.5	66.60	1,691.6
Helena	N. 46 34	W. 112 04	4.40 a. m.	B. 4,100	B. 1,250	25.78	654.8	30.06	763.5	38.3	3.5	65.2	8	35	91	128	10	7	...	9	77	...	54,777	88,152	4.7	10.32	262.1
Henrietta	N. 33 46	W. 98 12	5.35 a. m.	915	279	29.07	738.4	30.09	764.3	55.7	13.2	82.2	67	23	8	12	102	60	15	22	49	7	77,733	125,096	4.5	29.25	742.9
Huron	N. 44 21	W. 98 09	5.35 a. m.	1,305	398	28.61	726.7	30.05	763.3	36.9	2.7	76.9	32	102	23	6	30	118	29	24	1	...	95,138	153,106	5.2	28.12	714.2
Indianapolis	N. 39 46	W. 86 10	6.23 a. m.	753	229	29.26	743.2	30.07	763.8	49.1	9.5	78.2	53	40	28	53	53	52	26	34	26	...	48,629	78,258	5.5	53.68	1,363.5
Indianola	N. 28 32	W. 96 31	5.42 a. m.	26	8	30.01	762.2	30.04	763.0	68.6	20.3	86.9	57	15	12	21	103	74	21	47	15	...	116,949	157,629	5.2	41.90	1,064.3

APPENDIX 77.—*Annual summary,* 1882, *of international simultaneous observations*—Continued.

Stations.	Latitude.	Longitude.	Local time.	Altitude of barometer above sea.		Result of simultaneous observations for the year 1882.																				Total precipitation.	
						Mean barometer.				Mean temperature.		Mean relative humidity.	Wind.												Av. cloudiness.		
						Actual.		Reduced.					Directions.										Total movement.				
				Feet.	Meters.	Inches.	Millimeters.	Inches.	Millimeters.	Fahrenheit.	Centigrade.		N.	NW.	W.	SW.	S.	SE.	E.	NE.	Calm.	Blank.	Miles.	Kilometers.	0-10.	Inches.	Millimeters.
UNITED STATES—Continued.	° ′	° ′										P. ct.															
Jacksonboro	N. 33 12	W. 98 10	5. 35 a. m.	1, 119	340	28. 88	733. 5	30. 08	764. 0	56. 2	13. 4	79. 4	65	18	8	50	65	70	28	16	25	20	62, 695	100, 895	4. 6	38. 88	987. 6
Jacksonville	N. 30 20	W. 81 39	6. 42 a. m.	43	13	30. 07	763. 8	30. 12	765. 0	66. 6	19. 2	82. 0	26	25	20	67	41	23	32	59	72	..	51, 276	82, 518	4. 0	53. 26	1, 352. 8
Keogh, Fort	N. 46 22	W. 105 56	5. 04 a. m.	2, 372	723	27. 46	697. 5	30. 04	763. 0	37. 0	2. 8	70. 9	28	41	44	73	13	60	32	49	24	1	77, 289	124, 381	4. 9	10. 18	257. 3
Keokuk	N. 40 22	W. 91 26	6. 02 a. m	618	188	29. 38	746. 2	30. 06	763. 5	47. 7	8. 7	79. 8	32	50	40	44	30	37	43	29	59	1	57, 246	92, 126	4. 7	41. 54	1, 055. 1
Key West	N. 24 34	W. 81 49	6. 41 a. m.	20	6	30. 05	763. 3	30. 08	764. 0	76. 4	24. 7	77. 8	31	11	4	20	29	71	87	87	25	...	78, 196	125, 840	4. 4	41. 86	1, 063. 2
Kitty Hawk	N. 36 00	W. 75 42	7. 05 a. m.	22	7	30. 10	764. 5	30. 12	765. 0	57. 6	14. 2	82. 6	37	36	53	57	22	15	40	100	5	...	133, 234	151, 651	4. 9	73. 79	1, 874. 3
Knoxville	N. 35 56	W. 83 58	6. 32 a. m	980	299	29. 10	739. 1	30. 14	765. 5	52. 4	11. 3	87. 0	43	16	26	61	10	11	24	121	53	...	47, 678	76, 728	5. 6	66. 36	1, 685. 5
La Crosse	N. 43 49	W. 91 15	6. 03 a. m	608	185	29. 24	742. 7	30. 04	763. 0	43. 6	6. 4	71. 9	69	30	40	37	101	38	18	15	16	1	67, 672	108, 904	5. 6	27. 93	709. 4
Leavenworth	N. 39 19	W. 94 57	5. 48 a. m.	842	256	29. 16	740. 7	30. 07	763. 8	48. 6	9. 2	77. 3	42	64	7	5	90	33	18	13	93	...	60, 300	97, 041	4. 9	25. 97	659. 6
Lewiston	N. 46 28	W. 117 05	4. 20 a. m	B. 619	B. 189	29. 22	742. 2	30. 08	764. 0	44. 9	7. 2	67. 2	4	10	36	15	24	50	130	42	54	..	30, 660	49, 341	4. 8	14. 74	374. 4
Little Rock	N. 34 45	W. 92 06	6. 00 a. m	298	91	29. 76	755. 9	30. 08	764. 0	57. 6	14. 2	86. 6	38	49	17	37	42	30	28	42	81	1	46, 223	74, 387	5. 4	75. 54	1, 918. 7
Los Angeles	N. 34 03	W. 118 15	4. 15 a. m.	341	104	29. 65	753. 1	30. 05	763. 8	51. 6	10 9	76. 6	40	29	86	30	22	26	29	85	11	7	47, 489	76, 424	3. 3	10. 74	272. 8
Louisville	N. 38 15	W. 85 45	6. 25 a. m	530	162	29. 50	749. 3	30. 07	763. 8	53. 2	11. 8	79. 1	68	25	42	44	80	85	19	27	25	...	65, 920	106, 085	6. 0	56 50	1, 435. 1
Lynchburg	N. 37 25	W. 79 09	6. 52 a. m	652	199	29. 42	747. 3	30. 11	764. 8	53. 1	11. 7	73. 4	13	37	31	57	30	7	17	50	122	1	27, 596	44, 410	5. 4	46. 90	1, 191. 3
Macon, Fort	N. 34 42	W. 76 40	7. 01 a. m	11	3	30. 10	764. 5	30. 11	764. 8	59. 7	15. 4	86. 5	74	69	44	61	16	16	10	73	2	...	109, 532	176, 270	5. 6	61. 63	1, 565. 4
Madison	N. 43 05	W. 89 24	6. 10 a. m.	956	291	29. 02	737. 1	30. 05	763. 3	42. 4	5. 8	82. 4	39	57	56	45	46	44	43	34	1	...	85, 448	137, 510	5. 4	42. 89	1, 089. 4
Marquette	N. 46 34	W. 87 24	6. 18 a. m.	673	205	29. 29	744. 0	30. 04	763. 0	40. 2	4. 6	74. 6	33	74	96	46	30	26	15	24	21	...	76, 261	122, 727	6. 2	37. 08	941. 8
Memphis	N. 35 09	W. 90 03	6. 08 a. m.	321	98	29. 76	755. 9	30. 10	764. 5	57. 4	14. 1	82. 9	33	46	29	22	47	83	19	42	44	...	48, 022	77, 281	5. 4	71. 05	1, 804. 7
Milwaukee	N. 43 02	W. 87 54	6. 16 a. m	693	211	29. 28	743. 7	30. 04	763. 0	44. 1	6. 7	81. 8	44	51	79	68	37	27	25	29	5	...	103, 309	166, 255	6. 0	28. 43	722. 1
Missoula, Fort	N. 46 50	W. 114 07	4. 32 a. m.	3, 375	1, 029	26. 73	678. 9	30. 09	764. 3	35. 6	2. 0	77. 8	32	66	25	101	22	27	8	43	41	...	32, 091	51, 644	4. 6	13. 24	336. 3
Mobile	N. 30 41	W. 88 02	6. 16 a. m	41	12	30. 06	763. 5	30. 11	764. 8	63. 1	17. 3	85. 9	107	35	34	31	18	24	26	63	27	...	49, 507	79, 672	5. 0	74. 67	1, 896. 6
Montgomery	N. 32 23	W. 86 18	6. 23 a. m	219	66	29. 89	759. 2	30. 12	765. 0	60. 0	15. 6	83. 6	32	44	29	49	23	54	45	34	55	..	....	......	5. 0	54. 75	1, 390. 6
Moorhead	N. 46 52	W. 96 44	5. 41 a. m	923	281	29. 00	736. 6	30. 04	763. 0	32. 4	0. 2	85. 2	71	38	22	14	64	66	10	34	45	1	95, 436	153, 585	4. 8	34. 01	863. 9
Morgantown	N. 39 40	W. 79 50	6. 49 a. m	963	291	29. 09	738. 9	30. 12	765. 0	49. 9	9. 9	80. 3	18	14	17	78	14	15	11	36	162	...	45, 787	73, 685	5. 8	55. 28	1, 404. 1
Mount Washington	N. 44 16	W. 71 18	7. 23 a. m	6, 286	1, 916	23. 65	600. 7	30. 04	763. 0	24. 6	4. 1	83. 9	30	226	35	14	10	9	7	27	7	...	....	......	4. 3	97. 41	2, 474. 2
Nashville	N. 36 10	W. 86 47	6. 21 a. m	548	167	29. 54	750. 3	30. 10	764. 5	55. 4	13. 0	81. 5	40	49	47	40	42	43	38	22	44	...	44, 138	71, 031	6. 3	62. 94	1, 598. 7
New Haven	N. 41 18	W. 72 56	7. 16 a. m	107	32	29. 95	760. 7	30. 07	763. 8	45. 1	7. 3	77. 9	92	47	39	49	23	12	6	64	83	...	66, 453	106, 943	5. 8	47. 92	1, 217. 2
New London	N. 41 21	W. 72 05	7. 20 a. m.	47	14	30. 03	762. 7	30. 08	764. 0	47. 7	8. 7	76. 9	87	49	54	37	30	11	11	83	53	...	62, 325	100, 290	5. 6	50. 46	1, 281. 7
New Orleans	N. 29 58	W. 90 04	6. 08 a. m.	52	16	30. 02	762. 5	30. 08	764. 0	67. 2	19. 6	80. 8	50	19	12	32	53	62	66	51	30	...	63, 755	102, 591	4. 9	50. 18	1, 274. 6

Newport	N. 41 29	W. 71 19	7.23 a. m.	44	13	30.01	762.2	30.06	763.5	47.6	8.7	78.0	69	59	52	90	23	8	18	45	6	...	88,118	133,754	5.6	49.92	1,268.0
New York	N. 40 48	W. 74 00	7.12 a. m.	164	50	29.91	759.7	30.09	764.3	48.2	9.0	80.3	48	34	76	72	27	10	26	67	4	1	76,601	123,274	5.4	46.61	1,183.9
Norfolk	N. 36 51	W. 76 17	7.08 a. m.	80	9	30.08	764.0	30.11	764.8	56.9	13.8	79.0	64	41	40	60	27	20	34	59	20	...	62,084	99,902	5.3	57.67	1,464.8
North Platte	N. 41 08	W.100 45	5.25 a. m.	2,805	855	27.08	687.8	30.09	764.3	40.7	4.8	76.8	31	66	52	12	22	45	35	24	76	2	89,356	143,791	3.9	17.95	455.9
Olympia	N. 47 03	W.122 53	3.57 a. m	36	11	30.00	762.0	30.04	763.0	48.8	6.3	87.0	39	11	13	26	154	2	8	24	90	3	37,756	60,761	6.5	51.59	1,310.4
Omaha	N. 41 16	W. 95 56	5.44 a. m.	1,113	339	28.87	733.3	30.06	764.0	45.6	7.6	77.2	71	57	20	31	72	57	13	17	26	1	85,398	137,422	4.8	37.68	957.1
Ooglaamie	N. 71 17	W.156 40	1.41 a. m.	17	5	29.89	759.2	29.91	759.7	6.6	—14.1	93.3	30	24	30	36	36	37	73	82	8	...	116,586	187,612	6.1	8.18	207.8
Oswego	N. 43 29	W. 76 35	7.02 a. m	299	90	29.73	755.1	30.06	763.5	45.4	7.4	73.8	25	42	52	81	90	67	13	43	2	...	79,399	127,777	6.0	36.13	917.7
Pensacola	N. 30 25	W. 87 13	6.19 a. m.	80	9	30.07	763.8	30.10	764.5	64.5	18.1	85.6	73	38	21	30	40	37	36	75	17	...	67,298	108,303	5.2	72.01	1,829.1
Philadelphia	N. 39 57	W. 75 09	7.07 a. m.	92	28	30.01	762.2	30.11	764.8	51.0	10.6	74.9	25	67	38	66	20	20	21	72	16	...	65,722	105,767	5.3	45.58	1,157.7
Pike's Peak	N. 38 50	W.105 02	5.08 a. m.	14,134	4,308	17.73	450.3	30.11	764.8	15.6	— 9.1	78.7	25	92	78	118	8	8	1	29	11	...	167,819	270,071	2.6	28.82	732.0
Pioche	N. 37 56	W.114 26	4.30 a. m.	5,779	1,761	24.05	610.9	30.15	765.8	39.7	4.8	56.0	38	107	28	29	132	8	1	1	26	..	66,155	106,468	2.2	8.31	211.1
Pittsburg	N. 40 32	W. 80 02	6.48 a. m.	766	233	29.27	743.4	30.09	764.3	47.9	8.8	78.8	47	63	40	37	50	13	34	64	17	...	50,338	81,001	6.0	38.63	981.2
Port Eads	N. 29 09	W. 89 15	6.11 a. m	7	2	30.08	764.0	30.09	764.3	68.5	20.3	87.1	59	20	12	38	50	74	54	48	10	...	95,706	154,018	3.6	59.96	1,523.0
Port Huron	N. 43 00	W. 82 26	6.38 a. m	630	194	29.36	745.7	30.06	763.5	43.2	6.2	84.2	24	42	47	58	62	25	32	44	31	...	76,160	122,564	6.6	41.04	1,042.4
Portland, Me	N. 43 39	W. 70 15	7.27 a. m.	45	14	29.97	761.2	30.02	762.5	44.7	7.1	71.9	72	81	58	59	23	4	12	47	9	...	74,651	120,136	5.4	38.74	984.0
Portland, Ohio	N. 45 32	W.122 43	3.57 a. m.	67	20	30.02	762.5	30.09	764.3	46.0	7.8	85.2	22	58	14	16	95	28	14	6	122	...	46,603	74,998	5.8	67.24	1,707.9
Prescott	N. 34 33	W.112 28	4.38 a. m.	B5, 800	B1, 615	24.78	629.4	30.11	764.8	39.7	4.3	63.5	11	3	26	64	221	11	9	10	10	...	55,047	88,588	1.6	15.26	387.6
Punta Rassa	N. 26 29	W. 82 01	6.40 a. m	13	4	30.07	763.8	30.08	764.0	70.5	21.4	81.7	45	10	6	27	22	28	103	122	...	2	84,910	136,646	4.4	34.57	878.1
Rochester	N. 43 08	W. 77 42	6.57 a. m.	619	190	29.39	746.5	30.07	763.8	43.4	6.3	81.2	12	38	91	97	84	31	24	18	20	...	94,688	152,739	6.7	24.73	628.1
Roseburg	N. 43 13	W.123 20	3.55 a. m.	511	156	29.54	750.3	30.09	764.3	44.2	6.8	84.1	15	31	5	27	32	23	53	32	145	2	27,018	43,480	5.6	34.77	883.2
Sacramento	N. 38 35	W.121 30	4.02 a. m.	70	21	29.95	760.7	30.03	762.7	51.0	10.6	78.9	45	30	10	11	64	170	14	1	20	...	58,874	94,846	2.2	18.06	458.7
Saint Louis	N. 38 38	W. 90 12	6.07 a. m.	568	183	29.48	748.8	30.09	764.3	50.2	10.1	88.4	59	56	33	27	94	43	14	28	11	...	86,775	139,647	5.5	43.15	1,096.0
Saint Michael's, Fort	N. 63 48	W.162 00	1.20 a. m.	30	9	29.80	756.9	29.83	757.7	23.7	— 4.6	93.6	52	25	18	54	52	44	47	48	30	...	86,798	139,684	6.2	7.00	177.8
Saint Paul	N. 44 58	W. 93 03	5.56 a. m.	811	247	29.13	739.9	30.03	762.7	40.2	4.6	80.4	32	50	41	50	19	79	48	24	22	...	77,342	124,466	5.4	23.14	587.8
Saint Vincent	N. 48 56	W. 97 14	5.39 a. m.	760	232	29.12	739.6	30.03	762.7	28.5	— 1.9	89.3	50	73	36	13	54	67	34	26	12	...	86,977	139,972	4.7	22.48	571.0
Salt Lake City	N. 40 46	W.111 54	4.40 a. m.	4,368	1,331	25.65	651.5	30.10	764.5	43.1	6.2	53.2	21	29	7	4	9	89	32	26	147	1	45,963	78,968	4.8	15.98	405.9
San Antonio	N. 29 25	W. 98 25	5.34 a. m.	673	205	29.34	745.2	30.05	763.3	62.1	16.7	85.0	64	19	2	6	19	60	34	52	109	...	46,347	74,586	6.6	36.39	924.3
San Diego	N. 32 43	W.117 10	4.19 a. m.	67	20	29.94	760.5	30.01	762.2	54.8	12.7	79.9	63	53	26	41	21	10	36	102	9	4	54,096	87,056	3.5	9.74	247.4
Sandusky	N. 41 25	W. 82 40	6.37 a. m	639	195	29.38	746.2	30.07	763.8	48.1	8.9	77.7	25	32	66	88	58	36	26	34	...	...	116,087	186,819	6.2	42.53	1,080.2
Sandy Hook	N. 40 28	W. 74 00	7.12 a. m.	28	8	30.05	763.3	30.09	764.3	49.8	9.9	80.1	37	70	69	52	19	23	20	75	...	...	122,601	186,695	5.5	52.14	1,324.3
San Francisco	N. 37 48	W.122 26	3.58 a. m.	60	18	29.99	761.7	30.06	763.5	51.2	10.7	83.1	15	35	102	123	32	26	5	9	15	3	85,544	137,665	4.5	18.67	474.2
Santa Fé	N. 35 41	W.105 57	5.04 a. m.	7,106	2,166	23.24	590.3	30.13	765.3	40.6	4.8	56.7	51	12	6	17	23	41	76	100	39	...	72,990	117,468	2.8	11.37	288.8
Savannah	N. 32 05	W. 81 05	6.44 a. m.	87	26	30.03	762.7	30.13	765.3	63.7	17.6	77.5	77	48	45	65	47	17	20	37	5	4	62,151	100,020	5.6	47.35	1,202.7
Shaw, Fort	N. 47 31	W.111 48	4.41 a. m.	B3, 550	B1, 082	26.34	669.0	30.07	763.8	35.2	1.8	71.6	13	14	183	98	8	4	8	23	14	...	93,102	159,829	4.1	14.21	360.9
Shreveport	N. 32 30	W. 93 40	5.53 a. m.	230	70	29.84	757.9	30.08	764.0	60.0	15.6	87.7	52	23	16	22	91	45	31	42	43	...	48,559	78,146	5.6	65.11	1,653.8
Sill, Fort	N. 34 40	W. 98 23	5.34 a. m	B1, 190	B 263	28.80	731.5	30.08	764.0	52.2	11.2	82.0	127	25	3	8	101	29	13	18	40	1	95,467	153,635	4.7	31.13	790.7
Silver City	N. 32 46	W.108 14	4.55 a. m.	5,890	1,795	24.29	617.0	30.11	764.8	41.7	5.4	63.0	41	107	48	20	41	11	1	9	87	...	29,457	47,416	2.1	19.27	489.4
Sitka	N. 57 03	W.135 19	3.07 a. m.	63	19	29.74	755.4	29.81	757.2	40.9	4.9	77.5	6	23	11	24	16	59	93	87	44	2	87,946	141,532	6.8	102.26	2,597.4
Smithville	N. 33 55	W. 78 01	6.56 a. m.	34	10	30.07	763.8	30.11	764.8	59.7	15.9	84.3	87	62	62	45	12	9	25	59	4	...	88,892	135,018	4.8	48.27	1,226.0
Spokane Falls	N. 47 40	W.117 25	4.18 a. m.	1,906	581	27.99	710.9	30.09	764.3	39.1	3.9	79.7	8	28	27	90	50	15	22	43	82	...	49,098	79,014	5.5	25.99	660.1
Springfield, Ill	N. 39 48	W. 89 39	6.10 a. m.	640	195	29.38	746.2	30.08	764.0	49.2	9.6	76.9	42	55	35	28	79	41	27	36	22	...	70,398	113,283	4.9	58.21	1,478.5
Springfield, Mass	N. 42 06	W. 72 36	7.22 a. m.	120	37	29.94	760.5	30.08	764.0	45.5	7.5	76.0	91	40	40	18	104	7	8	27	30	...	....	....	5.9	47.25	1,199.9
Springfield, Mo	N. 37 12	W. 93 18	5.55 a. m.	1,351	412	28.62	726.9	30.09	764.3	51.0	10.6	82.7	37	35	23	25	99	68	31	35	10	2	78,166	125,782	5.1	55.43	1,407.9
Stevenson, Fort	N. 47 35	W.101 28	5.22 a. m.	1,734	529	28.12	714.2	30.04	763.0	32.4	0.2	84.1	17	88	29	24	6	44	68	49	25	15	74,923	120,573	5.0	27.85	707.4
Stockton, Fort	N. 30 53	W.102 53	5.16 a. m.	B3, 010	B 917	27.01	686.0	30.11	764.8	51.5	10.8	82.2	15	20	23	91	94	82	9	7	71	8	74,496	119,906	3.4	25.56	649.2
Thatcher's Island	N. 42 38	W. 70 34	7.26 a. m.	49	15	29.99	761.7	30.04	763.0	45.2	7.3	81.7	42	79	67	53	85	16	21	45	7	...	120,171	193,391	4.8	45.69	1,160.5
Toledo	N. 41 40	W. 83 34	6.34 a. m.	651	198	29.36	745.7	30.07	763.8	47.8	8.8	75.3	44	30	69	67	64	17	34	26	14	...	78,093	125,675	6.1	33.03	838.9
Tucson	N. 32 14	W.110 53	4.45 a. m.	2,369	722	27.55	699.8	30.02	762.5	54.4	+12.0	64.8	1	8	7	7	127	147	24	2	47	...	34,360	55,295	2.4	15.59	396.0
Umatilla	N. 45 55	W.119 20	4.11 a. m.	340	103	29.72	754.9	30.09	764.3	44.5	6.9	72.5	14	21	66	75	23	90	44	13	19	...	73,765	118,709	4.6	8.75	222.2
Uvalde	N. 29 13	W. 99 40	5.29 a. m.	930	283	.....	.....	.....	.....	.....	.....	.....	...	...	...	...	...	...	...	...	...	...	....	....	...	19.27	489.4
Verde, Fort	N. 34 33	W.111 52	4.40 a. m.	....	....	.....	.....	.....	.....	46.9	8.3	59.0	67	106	74	51	81	25	2	9	...	...	....	....	2.4	11.87	301.5

APPENDIX 77.—*Summary of international simultaneous meteorological observations for the year* 1882—Continued.

Stations.	Latitude.	Longitude.	Local time.	Altitude of barometer above sea.		Result of simultaneous observations for the year 1882.																			Av. cloudiness.	Total precipitation.	
						Mean barometer.				Mean temperature.		Mean relative humidity.	Wind.														
						Actual.		Reduced.					Directions.										Total movement.				
				Feet.	Meters.	Inches.	Millimeters.	Inches.	Millimeters.	Fahrenheit.	Centigrade.		N.	NW.	W.	SW.	S.	SE.	E.	NE.	Calm.	Blank.	Miles.	Kilometers.	0-10.	Inches.	Millimeters.
UNITED STATES—Continued.	° ′	° ′										P.ct															
Vicksburg	N. 32 22	W. 90 53	6.04 a. m.	248	74	29.84	757.9	30.10	764.5	61.1	16.2	83.4	42	28	11	21	55	92	43	39	34	...	42,711	68,735	5.8	71.56	1,817.6
Washington	N. 38 54	W. 77 02	7.00 a. m.	105	32	30.01	762.2	30.12	765.0	50.6	10.3	80.6	51	81	14	22	42	11	18	44	82	...	39,854	64,137	5.5	46.79	1,188.4
Williamsport	N. 41 15	W. 77 03	7.00 a. m.	561	171	29.49	749.0	30.10	764.5	46.0	7.8	77.3	21	67	97	10	10	24	37	26	73	...	42,869	68,990	6.5	39.11	993.4
Wilmington	N. 34 14	W. 77 57	6.56 a. m	52	16	30.06	763.5	30.11	764.8	60.0	15.6	81.4	43	40	55	47	10	10	30	90	40	...	58,081	93,389	5.4	52.29	1,328.2
Winnemucca	N. 40 59	W. 117 43	4.17 a. m.	4,237	1,291	25.64	651.2	30.14	765.5	36.4	2.4	62.5	18	6	6	135	21	7	13	146	12	1	75,366	121,287	3.1	10.46	265.7
Yankton	N. 42 54	W. 97 28	5.38 a. m.	1,228	374	28.71	729.2	30.06	763.5	40.6	4.8	74.1	31	70	33	29	27	41	20	29	76	...	66,919	107,693	4.4	20.63	524.0
Yuma	N. 32 45	W. 114 36	4.30 a. m.	138	42	29.78	756.4	29.93	760.2	60.3	15.7	58.1	65	37	18	31	11	39	20	64	80	...	47,933	77,138	2.0	1.78	45.2
Sub-series.																											
Bogota	N. 4 36	W. 74 14	7.11 a. m.	8,655	2,638	22.04	559.8	......	......	52.9	11.6	76.4	18	20	32	37	35	27	25	36	135	...	....	....	6.6	35.93	912.6
Paramaribo	N. 5 50	W. 55 13	8.27 a. m.	6	2	30.04	763.0	30.04	763.0	78.5	25.8	85.5	1	...	...	...	7	130	212	15	...	...	....	....	7.9	123.13	3,127.4
Puerto Berrio	N. 6 22	W. 74 28	7.10 a. m.	542	156	29.43	747.5	29.95	760.7	79.1	26.2	85.8	40	2	2	2	34	5	9	7	255	...	....	....	8.8	92.69	2,354.8
Rivas	N. 11 26	W. 85 47	6.25 a. m.	150	46	......	......	......	......	......	......	....	8	17	8	11	5	30	15	262	...	9	....	....	4.2	60.31	1,531.8
York Factory	N. 57 02	W. 92 26	5.58 a. m.	55	17	30.01	762.2	30.06	763.5	15.7	—9.1	....	62	69	34	48	40	26	28	49	...	...	....	....	4.6	25.77	654.6

Ocean square data for the year 1882.

Location of center of each square.		Barometer.		Temperature.		Wind frequency.										Force.
		Inches.	Millimeters.	Fahrenheit.	Centigrade.	N.	NW.	W.	SW.	S.	SE.	E.	NE.	Calm.	Blank.	0–10.
°	°															
N. 12.5	W. 22.5	30.03	762.7	79.4	26.3	6	1	2	4	....	1	10	315	1	25	1.7
N. 17.5	W. 22.5	30.08	764.0	76.8	24.9	3	.....	....	1	....	5	13	202	....	41	1.8
N. 22.5	W. 62.5	30.10	764.5	77.4	25.2	13	14	....	9	10	76	93	105	....	45	1.8
N. 22.5	W. 67.5	30.10	764.5	77.5	25.3	15	12	4	12	15	72	108	96	....	31	1.6
N. 22.5	W. 72.5	30.09	764.3	77.6	25.3	22	7	1	11	18	84	85	120	3	19	1.9
N. 27.5	W. 22.5	30.19	766.8	71.8	22.1	16	13	1	12	6	41	60	177	....	39	2.0
N. 27.5	W. 27.5	30.20	767.1	72.3	22.4	11	11	14	18	14	58	77	112	1	49	2.0
N. 27.5	W. 62.5	30.12	765.0	73.7	23.2	48	42	7	42	39	57	30	60	5	40	1.8
N. 27.5	W. 67.5	30.11	764.8	73.9	23.3	46	49	4	36	50	46	25	81	1	27	1.8
N. 27.5	W. 72.5	30.12	765.0	74.3	23.5	40	40	3	34	50	53	51	86	....	8	2.0
N. 27.5	W. 77.5	30.12	765.0	73.3	22.9	36	33	10	30	49	80	49	77	1	....	1.9
N. 32.5	W. 12.5	30.18	766.6	68.4	20.2	79	24	8	46	8	26	11	161	....	2	1.7
N. 32.5	W. 17.5	30.21	767.3	68.6	20.3	34	16	11	74	13	49	17	140	11	....	1.4
N. 32.5	W. 22.5	30.23	767.8	68.9	20.5	29	27	12	30	25	40	28	147	....	27	2.0
N. 32.5	W. 27.5	30.23	767.8	69.6	20.9	21	30	8	34	23	89	53	73	....	34	1.8
N. 32.5	W. 32.5	30.21	767.3	70.0	21.1	14	34	7	48	48	82	55	37	1	39	2.1
N. 32.5	W. 37.5	30.19	766.8	70.0	21.1	19	33	16	54	81	71	24	24	2	41	2.3
N. 32.5	W. 42.5	30.17	766.3	70.0	21.1	19	33	12	58	72	66	18	81	1	55	2.3
N. 32.5	W. 47.5	30.14	765.5	69.6	20.9	17	42	16	64	77	49	14	33	1	52	2.3
N. 32.5	W. 52.5	30.12	765.0	69.8	21.0	24	45	17	61	68	48	17	31	....	56	2.2
N. 32.5	W. 57.5	30.12	765.0	69.8	21.0	24	61	14	69	60	38	8	41	....	40	2.3
N. 32.5	W. 62.5	30.09	764.3	69.8	21.0	50	58	18	61	77	34	13	49	....	5	1.9
N. 32.5	W. 67.5	30.09	764.3	69.3	20.7	60	87	10	64	52	23	14	45	....	10	2.2
N. 32.5	W. 72.5	30.10	764.5	69.4	20.8	63	60	4	59	63	38	9	61	2	6	2.4
N. 32.5	W. 77.5	30.10	764.5	65.4	18.6	54	58	8	89	30	20	12	93	....	1	2.1
N. 37.5	W. 12.5	30.16	766.1	64.8	18.2	93	84	23	54	16	24	6	65	....	...	2.3
N. 37.5	W. 17.5	30.19	766.8	65.1	18.4	63	83	42	61	19	24	9	64	....	....	2.3
N. 37.5	W. 22.5	30.23	767.8	65.5	18.6	66	97	20	54	29	41	11	47	....	....	2.2
N. 37.5	W. 27.5	30.23	767.8	65.7	18.7	42	78	38	51	56	61	17	21	1	....	2.0
N. 37.5	W. 32.5	30.18	766.6	65.8	18.8	25	56	33	108	77	88	4	16	....	8	2.6
N. 37.5	W. 37.5	30.15	765.8	65.3	18.5	23	64	31	106	85	25	9	14	....	8	2.9
N. 37.5	W. 42.5	30.11	764.8	64.2	17.9	31	55	22	119	70	26	10	20	....	12	3.0
N. 37.5	W. 47.5	30.08	764.0	62.8	17.1	30	69	22	105	75	18	9	26	....	11	3.0
N. 37.5	W. 52.5	30.05	763.3	62.0	16.7	32	78	16	98	62	39	10	23	...	7	3.1
N. 37.5	W. 57.5	30.04	763.0	61.5	16.4	51	86	21	74	61	32	3	30	....	7	3.3
N. 37.5	W. 62.5	30.04	763.0	61.1	16.2	45	104	18	61	56	30	11	38	1	1	3.1
N. 37.5	W. 67.5	30.06	763.5	58.5	14.7	59	97	14	60	47	85	9	42	....	2	3.1
N. 37.5	W. 72.5	30.07	763.8	55.5	13.1	79	77	10	63	32	37	11	54	1	1	2.7
N. 42.5	W. 12.5	30.12	765.0	61.7	16.5	38	105	38	77	24	22	3	56	1	1	2.7
N. 42.5	W. 17.5	30.15	765.8	61.6	16.4	28	122	57	68	28	18	9	85	....	....	2.9
N. 42.5	W. 22.5	30.15	765.8	62.0	16.7	28	120	49	83	36	31	3	21	....	4	2.8
N. 42.5	W. 27.5	30.14	765.5	62.1	16.7	21	85	53	126	43	19	1	14	....	3	3.0
N. 42.5	W. 32.5	30.11	764.8	61.9	16.6	22	79	43	136	67	11	1	4	....	2	3.2
N. 42.5	W. 37.5	30.06	763.5	61.0	16.1	22	89	39	124	70	10	3	8	....	....	3.4
N. 42.5	W. 42.5	30.05	763.3	59.3	15.2	34	84	41	111	69	12	5	9	....	....	3.5
N. 42.5	W. 47.5	30.03	762.7	55.8	13.2	33	91	21	99	66	23	5	26	...	1	3.2
N. 42.5	W. 52.5	30.00	762.0	54.5	12.5	34	86	12	104	61	35	7	25	....	1	3.4
N. 42.5	W. 57.5	29.99	761.7	52.9	11.6	42	97	27	69	62	26	11	31	....	....	3.5
N. 42.5	W. 62.5	30.00	762.0	51.0	10.6	46	102	21	67	54	31	5	39	....	....	3.2
N. 42.5	W. 67.5	30.02	762.5	49.4	9.7	71	87	25	82	32	21	9	39	....	....	2.9
N. 47.5	W. 12.5	29.99	761.7	56.1	13.7	22	82	73	79	45	27	15	22	....	....	3.7
N. 47.5	W. 17.5	29.99	761.7	56.3	13.5	33	81	89	78	42	27	8	7	....	....	3.8
N. 47.5	W. 22.5	29.98	761.5	56.0	13.3	30	88	81	82	46	21	6	10	1	....	3.8
N. 47.5	W. 27.5	29.97	761.2	55.2	12.9	34	105	61	83	59	11	6	6	....	....	3.9
N. 47.5	W. 32.5	29.95	760.7	54.5	12.5	31	97	41	121	47	15	4	7	2	....	3.9
N. 47.5	W. 37.5	29.93	760.2	53.0	11.7	26	104	46	104	53	21	1	10	....	....	3.9
N. 47.5	W. 42.5	29.91	759.7	49.7	9.8	27	90	41	110	44	33	2	14	2	2	3.5
N. 47.5	W. 47.5	29.89	759.2	44.9	7.2	34	77	37	108	43	29	8	22	....	7	3.0
N. 52.5	W. 12.5	29.90	759.4	53.6	12.0	26	84	66	73	62	25	9	20	....	....	3.8
N. 52.5	W. 17.5	29.88	758.9	53.0	11.7	26	104	62	83	44	23	6	16	....	1	3.9
N. 52.5	W. 22.5	29.88	758.9	52.2	11.2	24	99	59	91	43	24	6	18	....	1	3.8
N. 52.5	W. 27.5	29.85	758.2	51.0	10.6	24	117	49	87	33	30	6	18	....	1	3.8
N. 52.5	W. 32.5	29.85	758.2	48.8	9.3	29	97	39	98	34	31	2	20	....	15	3.6
N. 52.5	W. 37.5	29.84	757.9	47.0	8.3	32	111	41	76	29	30	6	15	....	25	3.3
N. 57.5	W. 12.5	29.73	755.1	47.5	8.6	44	52	18	89	45	48	15	52	....	2	3.5
N. 57.5	W. 17.5	29.72	754.9	46.2	7.9	56	66	26	66	38	41	20	49	....	3	3.3
N. 57.5	W. 22.5	29.73	755.1	44.3	6.8	39	82	32	64	32	43	17	50	....	6	3.2
N. 57.5	W. 27.5	29.73	755.1	42.4	5.8	52	99	21	61	27	31	22	36	....	16	3.0
N. 57.5	W. 32.5	29.72	754.9	40.7	4.8	30	109	19	56	21	38	18	33	....	41	3.0

GENERAL REMARKS.

All data which appear in the Daily Bulletin of Simultaneous Meteorological Observations are copied from the regular exchanges of this office. The barometer readings for land stations, in the first and second columns, are reduced to freezing and their respective standards; those in the third and fourth columns to sea-level. When necessary, corrections for instrumental error, temperature, and reduction to sea-level are always applied, while those for instrumental error, only when such corrections can be ascertained with close approximation, as by comparison when vessels are at or near land stations. Relative humidity generally requires computation from the hygrometrical observations. When rain has fallen, but neither the amount nor duration is recorded, the word "blank" is published in the rain-fall column. The weather is generally published as given. The following symbols and abbreviations are common to all series, viz: †, aneroid; *, instrumental error not known; c, cirrus; k, cumulus; s, stratus; n, nimbus; d, scud; f, fracto; p, pallio; hz, haze; fg, fog; sk, smoke; inap, inappreciable; d, clouds, detached clouds. The movement of the air is published as given on the originals, when indicated by velocity in miles per hour, in meters per second, or by force, all variations of the latter being reduced to the common scale of 0 to 10. Those stations reporting the movement in pounds pressure per square foot are reduced to force on the common scale, and those in kilometers per hour, to meters per second and miles per hour. The distinction between upper and lower clouds is carefully made in the United States and a portion of the Canadian series, and the various formations are indicated by the letters above given and their combinations. In the monthly summary of international simultaneous meteorological observations the position of stations (latitude and longitude) are obtained from Keith Johnston's Index Geographicus, except where more exact information is furnished. The elevation of stations is obtained either from the annual, semi-annual, and monthy publications of the various meteorological bureaus here represented, or from the original forms, upon which are entered the daily observations. In the United States series the elevations are computed from the latest surveys, and are carefully revised each month, in order to note any change in the elevation of the barometer cistern at any station. It is believed for the most part that, throughout the European and other series, the elevations as given represent the height of the barometer cistern above sea-level; at least, this should be the case.

In the annual summary, where any change has occurred in the altitude of a station, the elevation given is that prevailing at the close of the year. The local time, where omitted or not given correctly in the originals, is carefully computed at this office. A letter placed opposite the name of a station or some portion of the data credited thereto, indicates that a certain number of observations are missing, corresponding to the relative position in the alphabet of the letter so used.

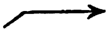
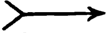
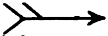
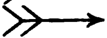
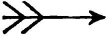
INTERNATIONAL CHARTS ACCOMPANYING DAILY BULLETIN AND MONTHLY SUMMARY.

International Chart I shows isobars and isotherms charted from data as appearing in the international bulletin of same date, as reported by the several observers. Isobars, in continuous lines, exhibit atmospheric pressure at sea-level in English inches; isotherms, in dotted lines, exhibit temperature of the air in degrees, Fahrenheit, similarly charted. Broken lines indicate that the lines so broken are doubtful.

International Chart II (monthly mean chart), showing mean pressure at sea-level in English inches, mean temperature in degrees, Fahrenheit, mean force and prevailing direction of wind at 7 a. m., Washington mean time.

International Chart III shows tracks of centers of low barometer. The Arabic numerals show location of the centers of low barometer at 7 a. m., Washington mean time, of that date. Broken or dotted lines are doubtful.

Arrows show direction of, and fly with, the wind. Force is shown as follows:

Symbols.	Force.	Velocity.	
		Miles per hour.	Meters per second.
○	0	0	0
	1, 2	0 to 9	0 to 4
	3, 4	9.1 to 22.5	4.1 to 10.1
	5, 6	22.6 to 40.5	10.1 to 18.1
	7, 8	40.6 to 67.5	18.1 to 30.2
	9, 10	67.6 up	30.2 and over.

The following remarks relate to the individual peculiarities in the *methods* of recording and the *times* of taking the international simultaneous meteorological observations, under the auspices of the various meteorological bureaus:

ALGERIAN SERIES (furnished by co-operation of General Maritz, commandant supérieur du Génie in Algeria).—The originals give the barometer in millimeters reduced to sea-level; temperature in centigrade. The movement of the air is indicated by force on a scale of 0 to 10. The rainfall is measured at 7 a. m., local time, and the amount indicated in millimeters.

AUSTRALIAN SERIES (furnished by co-operation of R. L. J. Ellery, director of the Observatory at Melbourne, N. S. W.).—At Melbourne the conversions are published as given in the originals. The movement of the air is indicated by velocity in miles per hour.

AUSTRO-HUNGARIAN SERIES (furnished by co-operation of Prof. Dr. Julius Hann, director of the Imperial and Royal Central Meteorological Institute at Vienna).—The originals give the barometer in millimeters reduced to sea-level and the temperature in centigrade. At the following stations rainfall is measured at local time: Lemburg, 7 p. m.; Vienna, 2 p. m.; Trieste, 7 a. m. The weather is given by the Vienna symbols or in general terms.

BRITISH SERIES (furnished by co-operation of the Meteorological Council, London, Robert H. Scott, esq., F. R. S., secretary, and respective observers).—In general the originals do not give rainfall or distinction between upper and lower clouds. Relative humidity, except for Bradford and Silloth Rectory, is not given on the originals, but is computed from hygrometrical observations. At Oxford and Sandwick Manse the barometers are given as read off. At Greenwich the movement of the air is indicated by pounds pressure per square foot. At the following stations rainfall is measured at local time: Bradford, 9 a. m., and Aberdeen, 10 a. m. The wind direction is given to 32 points and weather by the Beaufort notation.

CANADIAN SERIES (furnished by co-operation of Charles Carpmael, A. M., F. R. A. S., director of the Magnetic Observatory at Toronto and superintendent of the Meteorological Office of the Dominion of Canada, and respective observers).—The originals give the barometer reduced to sea-level in English inches and the temperature in Fahrenheit. Meteorological reports from stations marked with a * are telegraphed daily to the office of the Chief Signal Officer of the Army.

CAPE COLONY SERIES (furnished by co-operation of the Meteorological Commission of Cape Colony, Cape Town, and respective observers).—At Cape Town the barometer is given on the original as corrected for temperature only. Upper and lower clouds are given on a scale of 0 to 10, and the kind occasionally indicated by abbreviating Poëy's classification.

CHINESE SERIES (furnished by co-operation of Marc Dechevrens, S. J., director of the Meteorological Observatory at Zi-Ka-Wei).—At Zi-Ka-Wei the originals give the barometer in millimeters reduced to sea level and the temperature in centigrade. The movement of the air is given in meters per second and the direction to 16 points. The kind of clouds is occasionally given, and the degree of cloudiness on the scale of 0 to 10; distinction between upper and lower clouds is sometimes made. The weather is given in general (French) terms. The rainfall is given in millimeters and measured at the moment of simultaneous observation.

DANISH SERIES (furnished by co-operation of Capt. N. Hoffmeyer, director of the Royal Danish Meteorological Institute at Copenhagen).—The originals give the barometer in millimeters reduced to sea-level and the temperature in centigrade. The movement of the air is indicated by force on a scale of 0 to 6. The weather is occasionally given by the Vienna symbols, but it is not certain that they always refer to the moment of simultaneous observations, except at Copenhagen. No distinction is made between upper and lower clouds, and the direction of movement, together with the rainfall, is entirely omitted.

FRENCH SERIES (furnished by co-operation of the central Meteorological Office of France, Prof. E. Mascart, director, and respective observers).—The originals give the barometer in millimeters reduced to sea-level and the temperature in centigrade. The movement of the air is indicated by force on a scale of 0 to 6, except in meters per second for Mont Louis and Perpignan. In general the rainfall is measured at 9 a. m., local time. The direction of upper and lower clouds is given, but no distinction is made as to kind. The degree of cloudiness is given on a scale of 0 to 4 at Clermont-Ferrand and Puy de Dome, while at other stations the scale of 0 to 10 is employed, or general weather terms, from which the amount of cloudiness is inferred. The weather is given in general terms, except occasionally by the Vienna symbols at Mont Louis and Perpignan. At Guéret the observations are taken at 12 m., instead of 12.16 p. m., and at Besançon at midday instead of 0.32 p. m.

GERMAN SERIES (furnished by co-operation of Prof. Dr. G. Neumeyer, director of the German Marine Observatory at Hamburg).—The originals give the barometer in millimeters reduced to sea-level and the temperature in centigrade. The movement of the air is indicated by force on a scale of 0 to 10. The kind of clouds is occasionally given, but no distinction is made between upper and lower; the amount is given on a scale of 0 to 10, but the kind is rarely given. The weather is given in Vienna symbols or in general terms. At Berlin observations are taken at 2 p. m., instead of 1.02 p. m.

GREEK SERIES (furnished by co-operation of Prof. Dr. J. F. Julius Schmidt, director of the Royal Observatory at Athens).—The originals give the barometer corrected for temperature only and the thermometer in centigrade. Hygrometrical observations are not given. The kind of clouds is occasionally given, and the amount is inferred from the general weather terms. The movement of the air is indicated by force on a scale of 0 to 10.

INDIAN SERIES (furnished by co-operation of H. F. Blanford, meterological reporter to the Government of India at Calcutta).—The barometric observations refer to the Calcutta standard, which requires a correction of 0.011 inch, or 0.28 ^{mm}, as compared with the Kew standard. The wind velocity given is the average rate of wind since the observation of the preceding day. All conversions are published as given in the originals where the data are recorded to an additional decimal. The weather is given by the Beaufort notation, Vienna symbols, or special symbols.

ITALIAN SERIES (by authority of the minister of agriculture, industry, and commerce, furnished by co-operation of Prof. P. Tacchini, director of the Central Meteorological Office at Rome, and respective observers).—The originals give the barometer in millimeters reduced to sea-level and the temperature in centigrade. The movement of the air is indicated by velocity in kilometers per hour or by force on a scale of 0 to 4, as at Mondovi, Florence, and Cagliari. No distinction is made between upper and lower clouds, and the amount is given on a scale of 0 to 10.

JAPANESE SERIES (furnished by co-operation of I. Arai, director of the Imperial Meteorological Observatory at Tokei).—The rainfall is measured at 9.30 a. m., local time, and the conversions are all published as given in the originals. Distinction is generally made between upper and lower clouds, and the amount is given on a scale of 0 to 10. The weather is given in general terms. During the months of July, August, and September, 1882, the rainfall at Nagasaki was measured at 9.36 p. m., and at Niigati during July and August at 10.13 p. m., local time.

MAURITIUS SERIES (furnished by co-operation of C. Meldrum, secretary of the Meteorological Society of Mauritius).—All conversions are published as given in the originals. The direction of the wind is given to 64 points, and the rainfall is measured at 9.30 a. m., local time.

MEXICAN SERIES (by authority of the secretary of public works—furnished by co-operation of Señor Mariano Barcena, director of the Central Meteorological Observatory in the City of Mexico, and respective observers).—All conversions are published as given in the originals, but when an evident mistake has been made, the data is queried at this office. The kinds of clouds is given, and also the direction and amount of both upper and lower. The degree of cloudiness is indicated on a scale of 0 to 10. Rainfall is generally measured at 6 a. m., local time.

NETHERLANDS SERIES (furnished by co-operation of Prof. Buys Ballot, director of the Royal Meteorological Institute of the Netherlands at Utrecht).—The originals give the barometer in millimeters reduced to sea-level and the temperatures in centigrade. The movement of the air is indicated by pressure in kilograms per square meter, except as Hellevoetsluis, which gives force on a scale of 0 to 12. The humidity is not given on the originals, but for two stations it is computed from the hygrometrical observations. The weather is only given for Utrecht, from which the amount of cloudiness at that station is inferred.

NORWEGIAN SERIES (furnished by co-operation of Prof. H. Mohn, director of the Royal Norwegian Meteorological Institute at Christiania.)—The originals give the barometer in millimeters reduced to sea-level and their temperature in centigrade. The movement of the air is indicated by velocity in meters per second or by force on a scale of 0 to 6. The weather is occasionally given by Vienna symbols. At Bergen observations upon the weather and degree of cloudiness are made at 2 p. m., local time. At Brone the observations are taken at 2 p. m., instead of 12.57 p. m.

PORTUGUESE SERIES (furnished by co-operation of J. C. de Brito Capello, director of the Meteorological Observatory of the Infante Dom Luiz at Lisbon).—In the originals the barometer is given in millimeters and the temperature in centigrade. The movement of the air is indicated by velocity in kilometers per hour. The weather is occasionally given by the Vienna symbols. The rainfall is measured at noon each day.

RUSSIAN SERIES (furnished by co-operation of Prof. H. Wild, director of the Imperial Central Physical Observatory of Russia at St. Petersburg).—The originals give the barometer in millimeters reduced to sea-level and the temperature in centigrade. At Astrakham the barometer-cistern is below sea-level. The movement of the air is indicated by velocity in meters per second. No distinction is made between upper and lower clouds; the amount is given on a scale of 0 to 10, and the kind occasionally. The weather is occasionally given by the Vienna symbols.

Spanish series (furnished by co-operation of the Royal Observatory at Madrid, and respective observers).—The movement of the air, except for subseries, is given in kilometers per hour. The kind of clouds is occasionally given, and the degree of cloudiness on a scale of 0 to 10. The rainfall at San Juan is measured at 4 p. m., local time, and at San Fernando at midnight. The weather is given in general (Spanish) terms.

Swedish series (furnished by co-operation of Prof. R. Rubenson, director of the Royal Swedish Meteorological Institute, and of Prof. H. H. Hildebrandsson, director of the Meteorological Observatory of the Upsala University).—The originals give the barometer in millemeters reduced to sea-level and the temperature in centigrade. The movement of the air is indicated by force on a scale of 0 to 6, except in meters per second for Upsala. The kind of clouds is not given, but the the degree of cloudiness is indicated on a scale of 0 to 10. The rainfall is measured at 8 a. m., local time, and the weather is occasionally given by the Vienna symbols.

Swiss series (furnished by co-operation of Prof. E. Plantamour, director of the observatory at Geneva).—The originals give the barometer in millimeters, corrected for temperature only, and the thermometer in centigrade. The movement of the air is indicated by force on a scale of 0 to 10.

Turkish series (furnished by co-operation of A. Coumbary, Effendi, director of the Central Observatory at Constantinople, and of Prof. C. V. A. van Dyck, superintendent of the Lee Observatory at Beirut.)—The originals give the barometer in millimeters reduced to sea-level. The temperature is given in centigrade. The movement of the air is indicated by force on a scale of 0 to 7 for Valona, and on a scale of 0 to 12 for Beirut. At Constantinople the velocity is given in meters per second. The kind of clouds is not given, but the amount is indicated on a scale of 0 to 10, except at Valona, at which station it is inferred from the general weather terms.

United States series (by authority of the Secretary of War—furnished by co-operation of W. B. Hazen, brigadier and brevet major-general, Chief Signal Officer, U. S. Army).

United States sub-series (furnished by co-operation of the respective observers). The originals generally give the barometer reduced to sea-level and the temperature at Fahrenheit.—At Bogota and Navassa the barometer is corrected for temperature only; at Puesto Berrio, is given as read off, and at Rivas is omitted. The movement of the air is generally indicated by velocity in miles per hour, except on a scale of 0 to 10 for Bogota, Paramaribo, and Rivas, and 0 to 12 for Puerto Berrio. The wind direction is generally given to 16 points, except 8 points for Bogota and 32 points for Rivas. At Rivas the humidity is obtained by readings from Saussure's hygrometer.

British naval series (furnished by co-operation of the Meteorological Council, London, Robert H. Scott, esq., F. R. S., secretary).—The originals give the barometer as read off. The wind direction is given to 32 points. The movement of the air is indicated by force on a scale of 0 to 12. The distinction between upper and lower clouds is made as to direction, but not as to amount. The height of the sea disturbance is given on a scale of 0 to 9, and the weather by the Beaufort notation. The direction of movement of wind, clouds, and sea is compass direction, corrected only for deviation caused by the iron in the ship, while the correction for magnetic variation is applied at this office. The humidity is not given, but is computed from the hygrometrical observations.

Portuguese naval series (furnished by co-operation of J. C. de Brito Capello, director of the Meteorological Observatory of the Infante Dom Luiz at Lisbon).—The originals give the barometer in millimeters, corrected for temperature only, and the thermometer in centigrade. The movement of the air is indicated by force on a scale of 0 to 10. The humidity is not given, but is computed from the hygrometrical observations. The kind of clouds is not given, but the amount is indicated on a scale of 0 to 10; the direction of movement is given without distinction between the upper and lower. The height of sea disturbance is given on a scale of 0 to 9 and the weather by the Beaufort notation. The rainfall is not measured, but the duration is generally given in hours and minutes.

Swedish naval series (furnished by co-operation of E. Malmburg, director of the Nautical Meteorological Bureau at Stockholm).—The originals give the barometer as read off. The movement of the air is indicated by force on a scale of 0 to 12, and the direction is corrected for magnetic variation at this office. The humidity is not given, but is computed from the hygrometrical observations. The rainfall is omitted. The height of the sea-swell is given on a scale of 0 to 9 and the weather by the Beaufort notation.

United States naval series (by authority of the Secretary of the Navy—furnished by co-operation of the Navy Department, through Commodore John G. Walker, U. S. N., Chief of Bureau of Navigation).—The originals give the barometer as read off. The humidity is not given, but is computed from the hygrometrical observations. The sea-swell and weather are given in general terms. The direction of the wind is compass direction, corrected for variation.

MERCHANT-MARINE SERIES (furnished by co-operation of the owners, agents, &c., of the respective lines and vessels).—Same as U. S. Naval.

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